COUNTERFEIT BOLTS AND FASTENERS

HEARING

BEFORE THE

SUBCOMMITTEE ON
SCIENCE, RESEARCH AND TECHNOLOGY

OF THE

COMMITTEE ON
SCIENCE, SPACE, AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

APRIL 5, 1989

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*Ranking Republican Member.

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COUNTERFEIT BOLTS AND FASTENERS

WEDNESDAY, APRIL 5, 1989

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY,
SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY,
Washington, D.C.

The subcommittee met, pursuant to call, at 2:55 p.m., in room 2318, Rayburn House Office Building, Hon. Doug Walgren [chairman of the subcommittee] presiding.

Mr. WALGREN. Welcome to the committee, folks.

Today we will receive testimony on legislation designed to stop the flow of counterfeit bolts and other kinds of fasteners into the United States economy. H.R. 336, titled "The Standardization of Measurement Act of 1989," was introduced by Congressman Roe, who is chairman, as you know, of the full Committee on Science, Space, and Technology. Almost at the same time, Congressman John Dingell, the Chairman of the Energy and Commerce Committee, introduced a similar bill aimed at the same problem, and we hope that we can develop legislation between our two committees that will achieve a consensus and secure the kind of support necessary to become law.

Counterfeit high-strength bolts and other fasteners are clearly a threat to the integrity of almost every facet of American life, from nuclear plants, to bridges, to hotel construction, to military equipment. Most people's lives depend on them. Fasteners literally hold the infrastructure together, and when they are substandard and fail, there is the immediate potential of a disaster that can cause widespread chaos, economic damage, and widespread loss of life as well. The unscrupulous manufacturer and distributor of substandard bolts is one element in our society that clearly must be stopped.

We think that enforced testing of manufacturers' production will make it harder for them to penetrate with fraudulent kinds of material, but how to do so is the topic that we want to discuss today. H.R. 336 would prevent fraudulent testing by requiring that bolt samples be tested in laboratories that would be accredited by the National Institute of Standards and Technology before bolts could be sold.

Now how this accreditation process will be accomplished is an open question, and we want to consider various suggestions about H.R. 336, as introduced, in hopes that we can reach an agreement. One suggestion is that we might limit the focus of that bill to high-strength fasteners or those used in critical applications by requir-

ing accredited testing on fasteners that carry grade mark identifications alone.

Another objective of the legislation is to make use of the standards that have been developed by consensus standards organizations and to use the private sector to the greatest extent possible. The questions that still arise are things like, do criminal sanctions need to be imposed in this area? Do the components of the bill provide a good deterrent, or is it a kind of structure that loopholes could be developed and the intent of the bill circumvented? Should the Government accredit individual laboratories or accredited private agencies or qualified organizations to perform the role that the accredited agency would perform? Are there implications for international trade, and what do we do with bolts that come in from overseas?

This legislation would have implications for manufacturers, for importers, for distributor laboratories, for standards organizations, and other accrediting agencies, and we would like to have a development of that for our record.

I want to express in advance appreciation to the witnesses that will contribute to the record here today and look forward to their testimony.

At that point, I would like to recognize the ranking minority member of the subcommittee, Mr. Boehlert.

Mr. BOEHLERT. Thank you, Mr. Chairman. I'll be very brief.

This is the second year that we have had hearings on this issue, and I hope and expect we will be able to bring a bill to the Floor soon.

Our witnesses today will be offering helpful suggestions on ways to improve the bill—we have been assured of that—which we will keep in mind as we negotiate with the Committee on Energy and Commerce. I think the matter is too important to get so bogged down in jurisdictional disputes. That oftentimes hampers, rather than encourages progress around here.

I look forward to bringing forward a single bill to the Floor which will protect safety without unduly burdening industry.

Thank you.

Mr. WALGREN. Thank you, Mr. Boehlert.

Are there other Members that would like to contribute to the record at this point?

Let me at the outset say to all the witnesses, as you know, written statements that you would like to submit will be reproduced in the record in full for those who work with these documents. We are getting a late start today, and we have a number of witnesses to go through, and so I'd like to ask each of you if you wouldn't do your level best to see if you can't make the points that you feel deserve to be emphasized in five minutes, and that will get us through, I think, in time, and knowing that your full statements will be reproduced in the record as you submit them.

So let's start at that point with Mr. Kammer, the Acting Director of the National Institute of Standards and Technology.

Mr. Kammer.

STATEMENTS OF RAYMOND KAMMER, ACTING DIRECTOR, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY; JAMES NICOLO, CHIEF, TEST AND EVALUATION DIVISION, DEFENSE INDUSTRIAL SUPPLY CENTER; AND BILL D. COLVIN, INSPECTOR GENERAL, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Mr. KAMMER. Thank you, sir.

I'm here today to present the views of the Administration with regard to H.R. 336. We believe that the problem of counterfeit and substandard fasteners can be resolved without legislation. However, the administration would not object to a bill along the lines of H.R. 336 because it is consistent with use of existing NIST programs and would not place NIST in a regulatory role over the private standards community.

There are available now two voluntary approaches to this problem: the National Voluntary Laboratory Accreditation Program and the Private Sector Certification Program by the American Society of Mechanical Engineers. Mr. Mel Green of ASME will be testifying a little later today, so I won't describe the ASME program any further than to say that we think it is a good program, it has been developed in collaboration with industrial manufacturers and users, and we understand that they will be ready to go this summer.

The other approach is the NIST National Voluntary Laboratory Accreditation Program (NVLAP) which has successfully collaborated with the private sector to evaluate more than 900 laboratories in 12 product areas. Our procedures are published and known, I think, widely. One of the advantages of this program is that the cost of developing new accreditation programs is borne by the benefiting organizations, and there have been a number of cases where the use of NVLAP has been required for laboratories wishing to participate in programs cited by regulatory agencies or, as for asbestos testing, when mandated by Congress.

In our view, the NVLAP program and the approach that has been evolved for that program is entirely consistent with the accreditation effort proposed by H.R. 336. We also are pleased to note that the bill implicitly recognizes that enforcement can be accomplished by relying on the judicial system and the Federal regulatory agency infrastructure without additional law with respect to that aspect.

Thank you, sir. I'd be happy to answer your questions.

[The prepared statement of Mr. Kammer follows:]

U.S. DEPARTMENT OF COMMERCE

STATEMENT OF RAYMOND G. KAMMER, ACTING DIRECTOR

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

BEFORE THE SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY

COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

U.S. HOUSE OF REPRESENTATIVES

ON BOLT MEASUREMENT STANDARDIZATION

APRIL 5, 1989

Mr. Chairman and Members of the Subcommittee:

I am Ray Kammer, Acting Director of the National Institute of Standards and Technology (NIST). With me today is Dr. Stanley Warshaw, Associate Director for Industry and Standards at NIST. I am here to summarize the views of the Administration with regard to H.R. 336, the Standardization of Measurement Act of 1989.

We believe that the problem of counterfeit and sub-standard fasteners can be resolved without legislation. However, the Administration would not object to a bill along the lines of H.R. 336 because it is consistent with use of existing NIST programs and would not place NIST in a regulatory role over the private standards community.

Section 4 should be revised to only include fasteners which

require a grade identification marking and which are intended to be used in applications requiring high strength, corrosion resistant, or high temperature resistant fasteners. Other fasteners that are not required to have grade identification are manufactured to minimum properties, such as strength level, and are not intended to have special properties or to be used in critical applications.

There are available two voluntary approaches to this problem: one, the National Voluntary Laboratory Accreditation Program (NVLAP) at NIST; the other, the private sector certification program by the American Society of Mechanical Engineers (ASME).

The private sector standards community, government agencies and purchasers of special-purpose fasteners already have the expertise, motivation, and influence to take the necessary action. Indeed, they are well along the path toward fully remedying the counterfeit fastener problem.

The American Society of Mechanical Engineers has been working to develop a certification program to address the mislabelling of fasteners. ASME plans to implement the program this summer. The development of this program has included input from major industrial fastener users such as Boeing and General Motors, government personnel from DOD and NRC, and the Industrial Fasteners Institute.

The ASME proposed Fastener Accreditation Program would include inspection of manufacturers' laboratories and testing of personnel for technical competence, an assessment of their quality assurance programs, testing of selected samples, and periodic unannounced inspections. Subsequently, a certification would be issued and a list of approved manufacturers and markings would be published. The ASME Fastener Accreditation Program would also provide for the participation of concerned Federal agency representatives in its management and audit activity.

The ASME Fastener Accreditation program is similar to its world recognized accreditation and inspection efforts that assure conformance to its Boiler and Pressure Vessel Code. That Code is a set of standards developed by volunteer technical personnel representing pressure vessel manufacturers and users. This set of standards, first adopted in 1915, is continually updated. Users of pressure vessels produced to the Code requirements can be confident that the vessel will be designed, fabricated, and inspected according to a safe standard.

The other approach is the NIST's National Voluntary Laboratory Accreditation Program (NVLAP) which has cooperated with the private sector to evaluate more than 900 laboratories in 12 different product areas, such as computer protocols, carpets, radiation dosimeters, and asbestos abatement. NVLAP's policies

and procedures are published in 49 FR 446633. Our program utilizes open workshops to design specific program requirements. The NVLAP functions on a fully-reimbursable basis, with operating costs recovered from fees collected from the participating laboratories. The cost of developing a specific new accreditation program is borne by the requesting organizations.

Accreditation by NVLAP has been required for laboratories wishing to participate in programs cited by regulatory agencies or, as for asbestos testing, when mandated by Congress.

The NVLAP program conforms to both national and international guidelines for laboratory accredition. Our program is recognized by other nations, and we have entered into several bilateral agreements for the mutual acceptance of test results from laboratories accredited by NVLAP or the other signatory.

An accreditation program for laboratories that test special purpose fasteners could readily be established within NVLAP without the need to issue regulations or to prescribe a laboratory accreditation program within NIST. We find the NVLAP program to be completely consistent with the accreditation effort proposed in H.R. 336.

We are also pleased to note that this bill implicitly recognizes that enforcement can be accomplished by relying on the judicial system and Federal regulatory agency infrastructure without additional law.

Thank you, Mr. Chairman. I will be happy to address any questions you or the Subcommittee may have.

RAYMOND G. KAMMER

Acting Director
National Institute of Standards and Technology (NIST)
(Formerly National Bureau of Standards (NBS)
United States Department of Commerce

Ray Kammer is Deputy Director of NIST. He is currently Acting Director as well. NIST is the Nation's central laboratory for measurement and standards research in support of U.S. industrial needs. Kammer manages the NIST staff of close to 3100 physicists, chemists, mathematicians, engineers, and support personnel.

A graduate of the University of Maryland, Kammer joined NIST in 1969 as a technical program analyst. Over the following decade he served the agency and the U.S. Department of Commerce in a succession of offices concerned with budgetary and program analysis; planning; and personnel management. In 1980, Kammer was appointed Deputy Director of NIST.

In addition, Kammer has served as chairman of several important evaluation committees for the Department of Commerce, including reviews of satellite systems for weather monitoring and the U.S. LANDSAT program, and the next generation of weather radars used by the U.S. government. He is now serving a three-year term on the Board of Directors of ASTM, a major international organization for the development of voluntary standards for materials, products, systems and services.

His awards include both the Gold and Silver medals of the Department of Commerce, given for meritorious service to the Department and the nation, the William A. Jump Award for Exceptional Achievement in Public Administration, the Federal Government Meritorious Executive Award, and the Roger W. Jones Award for Executive Leadership.

February 1989

Mr. WALGREN. Thank you very much, Mr. Kammer.

Before we turn to that, let's turn then to Mr. Nicolo, who is the Chief of the Testing and Evaluation Division for the Defense Industrial Supply Center.

Mr. Nicolo.

Mr. NICOLO. Thank you, Mr. Chairman and members of the subcommittee.

I am James Nicolo, Chief of the Test and Evaluation Division at the Defense Industrial Supply Center, a primary level field activity of the Defense Logistics Agency. I am pleased to appear today before the Subcommittee on Science, Research, and Technology. I'd like to begin by providing a brief description of the test and evaluation function at DISC and how it operates.

The fundamental concept of the test and evaluation function is the utilization of a vast network of independent test laboratories located throughout the country to satisfy a variety of testing needs. T&E, as we call it, operates in a manner that is most reactive to its customers. Fundamental precepts adhered to include rapid placement of test orders, development of test plans, on-site sample processing, and evaluation of test results.

Last summer, I had the opportunity to appear in front of this subcommittee and describe how we exercise the T&E network to test and evaluate suspect fastener contracts. We have continued this effort, and I am pleased to say that the laboratories have responded in a timely and professional manner in support of this most important endeavor. We have tested thousands of fastener samples in support of our procurements, assisting the Defense Criminal Investigative Service, and assessing our current inventory.

Testing has ranged from basic material composition analysis to very precise thread measurements. We have called upon dozens of laboratories to support our testing needs, and we have witnessed a most cooperative spirit in the laboratory community.

One of the subjects of today's hearings is laboratory accreditation. This is an activity that we have pursued over the past several years, and we have been successful in the implementation of a national voluntary laboratory accreditation program for metals testing. The impetus for this effort stems from the fact that the Defense Industrial Supply Center procures and supplies large quantities of metals and metal products that need to be tested to assure that the Government is receiving fair value for the dollar. This assurance must be provided through testing that has the highest possible credibility and the lowest possible disparity of results due to differing interpretation of test methods and less than optimum quality standards for laboratory operation. As a by-product from this activity, we envision a standardization of laboratory accreditation criteria and, thus, a reduction in audits being performed by the users of laboratories.

In pursuit of the accreditation program, we utilize the services of the American Association for Laboratory Accreditation, the A2LA. The A2LA embodies the use of national and international standards as their guidelines for accreditation, and their approach includes what we consider to be essential ingredients for assessing laboratory performance.

The A2LA has demonstrated continual progress in satisfying our original objective of establishing a sound metals accreditation program and applying it to accredit laboratories that we can use to fulfill our testing needs.

Mr. Chairman, that concludes my oral statement. I'll be happy to answer any questions you or members of the subcommittee may have.

[The prepared statement of Mr. Nicolo follows:]

STATEMENT BY

JAMES D. NICOLO

CHIEF, TEST AND EVALUATION DIVISION

DEFENSE INDUSTRIAL SUPPLY CENTER

DEFENSE LOGISTICS AGENCY

BEFORE THE

SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY

COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

HOUSE OF REPRESENTATIVES

5 APRIL 1989

NOT FOR PUBLICATION
UNTIL RELEASED BY THE SUBCOMMITTEE ON
SCIENCE, RESEARCH AND TECHNOLOGY
COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

PREPARED STATEMENT BY JAMES D. NICOLO DEFENSE INDUSTRIAL SUPPLY CENTER, DEFENSE LOGISTICS AGENCY, DEPARTMENT OF DEFENSE

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE, I AM JAMES NICOLO, CHIEF OF THE TEST AND EVALUATION DIVISION AT THE DEFENSE INDUSTRIAL SUPPLY CENTER, A PRIMARY LEVEL FIELD ACTIVITY OF THE DEFENSE LOGISTICS AGENCY (DLA). I AM PLEASED TO APPEAR TODAY BEFORE THE SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY.

I WOULD LIKE TO BEGIN BY PROVIDING A BRIEF DESCRIPTION OF THE TEST AND EVALUATION FUNCTION AT DISC, AND HOW IT OPERATES.

THE FUNDAMENTAL CONCEPT OF THE TEST AND EVALUATION FUNCTION IS THE UTILIZATION OF A VAST NETWORK OF INDEPENDENT TEST LABORATORIES LOCATED THROUGHOUT THE COUNTRY TO SATISFY A VARIETY OF TESTING NEEDS. T & E AS WE CALL IT, OPERATES IN A MANNER THAT IS MOST REACTIVE TO ITS CUSTOMERS. FUNDAMENTAL PRECEPTS ADHERED TO INCLUDE RAPID PLACEMENT OF TEST ORDERS, STRUCTURED TEST PLANS, ON-SITE SAMPLE PROCESSING AND EVALUATION OF TEST RESULTS. THE HEART OF CONTRACT ORDER PLACEMENT IS THE USE OF BLANKET PURCHASE AGREEMENTS (BPAs). THIS CONTRACTING MECHANISM ALLOWS FOR PLACEMENT OF SPECIFIC TASK ASSIGNMENTS WITH ANY LABORATORY IN THE NETWORK (THOSE WHO HAVE SIGNED THE

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BASIC AGREEMENT). STRUCTURED TEST PLANS ARE PREPARED BY ENGINEERS AND SPECIALISTS IN THE TEST AND EVALUATION DIVISION. THESE PLANS FACILITATE ACQUISITION OF TESTING SERVICES IN THAT THEY PRECISELY IDENTIFY THE TASKS REQUIRED. STRUCTURING TEST PLANS HAS PROVEN TO BE A MOST ECONOMICAL AND TIME EFFICIENT OPERATING PROCEDURE IN THAT TESTING IS DIRECTED TO THE SPECIFIC POINT IN QUESTION AND TIME IS NOT WASTED ON ANCILLARY OR UNNECESSARY CHARACTERISTIC EVALUATIONS.

WITH A NATIONWIDE LABORATORY NETWORK, SAMPLE PROCESSING HAS BEEN SIGNIFICANTLY FACILITATED. SAMPLES FOR TESTING CAN BE TESTED IN THE SAME LOCALE WHERE THE ITEMS ARE STORED, MANUFACTURED OR SUPPLIED.

EVALUATION OF TEST RESULTS IS PERFORMED BY THE TEST AND EVALUATION DIVISION AND DETERMINATIONS ARE MADE ON MATERIAL DISPOSITION, DEVELOPMENT OF TECHNICAL DATA, VERIFYING OR INVALIDATING DEFICIENCY REPORTS AND WHETHER OR NOT CONTRACTUAL REQUIREMENTS HAVE BEEN MET.

DISC's TEST AND EVALUATION DIVISION SUPPORTS A VARIETY OF PROGRAMS INCLUDING SPECIFICATION AND STANDARD DEVELOPMENT, VALUE ENGINEERING, COMPETITION, QUALITY ASSURANCE, HAZARDOUS WASTE ANALYSIS AND INVESTIGATION OF FRAUD ISSUES.

LAST SUMMER I HAD THE OPPORTUNITY TO APPEAR IN FRONT OF THE SUBCOMMITTEE AND DESCRIBE HOW WE EXERCISE THE T & E NETWORK TO TEST AND EVALUATE SUSPECT FASTENER CONTRACTS. WE HAVE CONTINUED THIS EFFORT AND I AM PLEASED TO SAY THAT THE LABORATORIES HAVE RESPONDED IN A TIMELY AND PROFESSIONAL MANNER IN SUPPORT OF THIS MOST IMPORTANT ENDEAVOR. WE HAVE TESTED THOUSANDS OF FASTENER SAMPLES IN SUPPORT OF OUR PROCUREMENTS, ASSISTING THE DEFENSE CRIMINAL INVESTIGATIVE SERVICE, AND ASSESSING OUR CURRENT INVENTORY. TESTING HAS RANGED FROM BASIC MATERIAL COMPOSITION ANALYSIS TO VERY PRECISE THREAD MEASUREMENTS. WE HAVE CALLED UPON DOZENS OF LABORATORIES TO SUPPORT OUR TESTING NEEDS AND WE HAVE WITNESSED A MOST COOPERATIVE SPIRIT IN THE LABORATORY COMMUNITY.

A KEY ANCILLARY PROJECT WE HAVE PURSUED OVER THE PAST SEVERAL YEARS IS THE IMPLEMENTATION OF A NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR METALS TESTING.

THE IMPETUS FOR THIS EFFORT STEMS FROM THE FACT THAT THE DEFENSE INDUSTRIAL SUPPLY CENTER PROCURES AND SUPPLIES LARGE QUANTITIES OF METALS AND METAL PRODUCTS THAT NEED TO BE TESTED TO ASSURE THAT THE GOVERNMENT IS RECEIVING FAIR VALUE FOR THE DOLLAR. THIS ASSURANCE MUST BE PROVIDED THROUGH TESTING THAT

HAS THE HIGHEST POSSIBLE CREDIBILITY AND THE LOWEST POSSIBLE DISPARITY OF RESULTS DUE TO DIFFERING INTERPRETATION OF TEST METHODS AND LESS THAN OPTIMUM QUALITY STANDARDS FOR LABORATORY OPERATION. AS A BY-PRODUCT FROM THIS ACTIVITY, WE ENVISION A STANDARDIZATION OF LABORATORY ACCREDITATION CRITERIA AND THUS A REDUCTION IN AUDITS BEING PERFORMED BY THE USERS OF LABORATORIES.

IN PURSUIT OF THE ACCREDITATION PROGRAM WE UTILIZE THE SERVICES OF THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA). THIS ASSOCIATION IS A PRIVATE SECTOR, NONPROFIT ORGANIZATION WITH CONSIDERABLE EXPERTISE IN THE FIELD OF LABORATORY ACCREDITATION. THE A2LA EMBODIES THE USE OF NATIONAL AND INTERNATIONAL STANDARDS AS THEIR GUIDELINES FOR ACCREDITATION AND THEIR APPROACH INCLUDES WHAT WE CONSIDER TO BE ESSENTIAL INGREDIENTS FOR ASSESSING LABORATORY PERFORMANCE.

THE A2LA HAS DEMONSTRATED CONTINUAL PROGRESS IN SATISFYING OUR ORIGINAL OBJECTIVE OF ESTABLISHING A SOUND METALS ACCREDITATION PROGRAM AND APPLYING IT TO ACCREDIT LABORATORIES THAT WE CAN USE TO FULFILL OUR TESTING NEEDS. WE LOOK FORWARD TO CONTINUED SUCCESS IN THIS ACTIVITY SUCH THAT THE ENTIRE LABORATORY COMMUNITY WILL PARTICIPATE AND PROVIDE US WITH MAXIMUM NETWORK EFFECTIVENESS.

Mr. WALGREN. Thank you very much, Mr. Nicolo. We appreciate that.

Mr. Colvin.

For the record, Mr. Colvin is the Inspector General of the NASA organization, the National Aeronautics and Space Administration.

Mr. Colvin.

Mr. COLVIN. Thank you, Mr. Chairman, members of the subcommittee.

I am pleased to be here today to summarize for you the major findings of the audit involving aerospace fasteners. I have submitted a written statement for the record, and I will try and present a short oral presentation for you now to highlight that audit.

The audit was conducted at Marshall Space Flight Center, Kennedy Space Center, 17 manufacturers, and 6 distributors of fastener products, and I would add that it was greatly assisted by personnel of NASA's Quality Office and also of its prime contractor. It was conducted to address concerns over testing, certification, and traceability of aerospace fasteners. In one-third of the manufacturers and distributors reviewed deficiencies were noted.

Aerospace fasteners are contractually required to meet national aerospace standards. To ensure that the fasteners meet these standards, lot testing is required, and a certification that the testing has been performed must accompany the lot.

Our first finding is that fastener certifications are unsupportable by test results. We found instances where certifications were provided when, in fact, no testing had been performed, under-testing had been performed, reworked fasteners were certified as original, lot integrity was compromised, and, more recently, composition was substituted. Under these conditions, there is no assurance as to the structural integrity of these fasteners and, if located in fracture critical areas, could, indeed, be life-threatening.

To correct these deficiencies, we are recommending that certification statements be supported by manufacturer's lot number and that recorded test results accompany the certification. Further, NASA should selectively test the lot and compare their results with the manufacturer's recorded test data. This can be accomplished contractually and will strengthen the integrity issue.

A second major finding was the inability to trace fasteners from manufacture to end use. Without lot traceability, product integrity cannot be established and responsiveness to quality alerts is hampered. To correct this deficiency, I recommended that NASA require traceability from manufacturer to end use in flight systems. This, too, can be accomplished through contractual requirements and internal regulations. The agency has agreed to establish lot traceability into controlled inventories only. I am not yet convinced this is sufficient to be responsive to quality alerts.

While not specifically addressed by the audit, what cannot be achieved contractually and which would be of major value in traceability would be a standardized system for head markings to identify manufacturers.

Thirdly, current practices of disposing of uncertifiable fasteners do not preclude their false recertification and resale to the Government. To correct this, we are recommending that procedures be developed to preclude this practice. These procedures may include

meltdown, defacing, or inking. Internally, NASA can establish procedures for itself, but this does not eradicate the overall concern.

My fourth concern is the timely and adequate response to quality alerts by NASA and its contractors. This, too, is being corrected through contractual and internal practices.

In summary, the major findings of our audit address the issues of testing, certification, traceability, and disposition. In my opinion, there are sufficient contractual provisions and criminal law enforcement for me to do my job. However, I would reiterate my concerns for standardized head markings to aid in traceability and for standardized disposition of surplus fasteners.

Mr. Chairman, this completes my oral remarks. I'll be glad to answer any questions.

[The prepared statement of Mr. Colvin follows:]

NASA
National Aeronautics and Space Administration

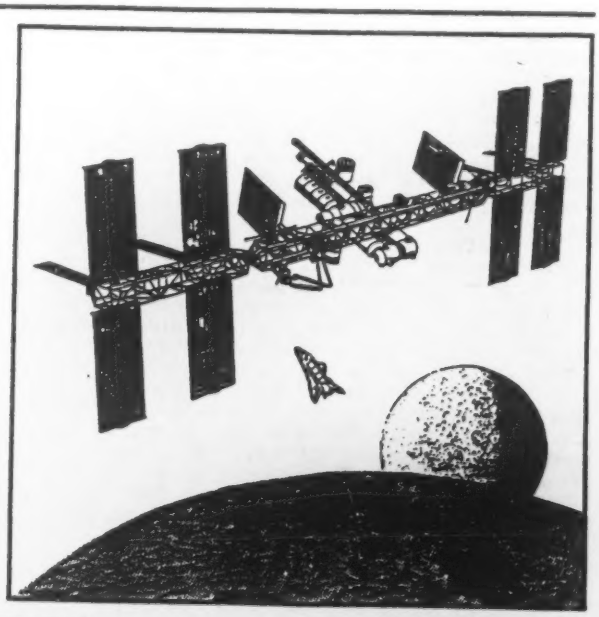
Hold for Release Until
Presented by Witness

April 5, 1989

Subcommittee on Science, Research and Technology

Committee on Science, Space and Technology

House of Representatives



Statement by:
Bill D. Colvin
Inspector General

101st Congress

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Statement of

Bill D. Colvin
Office of Inspector General

National Aeronautics and Space Administration

before the

Subcommittee on Science, Research and Technology
Committee on Science, Space, and Technology
House of Representatives

Good afternoon, Mr. Chairman and members of the Committee. I am pleased to have the opportunity to discuss a recent audit that the Office of Inspector General conducted of fastener products at the NASA Marshall Space Flight Center, Huntsville, Alabama. The final report was issued to NASA management on February 2, 1989.

The audit was initiated as a result of problems identified in Marshall Space Flight Center and Government-industry data exchange program alerts issued on various fastener manufacturers and suppliers. The objective of the audit was to evaluate quality control systems established by NASA, prime contractors, and suppliers of fastener products to ensure product safety and compliance with fastener certification standards. An initial survey was performed to evaluate policies, procedures, and controls established to certify fastener products. Based upon the survey results, the review was expanded to include procurement policies, inventory controls, disposal actions, and alert procedures.

The audit was conducted at the Marshall Space Flight Center, Kennedy Space Center, eight NASA contractors, and six distributors of fastener products. Quality reviews previously conducted by Marshall Space Flight Center quality personnel identified significant deficiencies with the documentation of fastener test results which supported manufacturer certifications. Marshall Space Flight Center initiated a prime contract to conduct fastener product reviews, which resulted in identification and referral to the Office of Inspector General certain manufacturers' certifications which were not properly supported by required quality tests. Since prior Marshall Space Flight Center initiated product quality reviews had concentrated on fastener manufacturers, distributors were given priority in the selection of fastener suppliers to include in the Office of Inspector General audit.

Our audit disclosed that uniform NASA policies and procedures had not been implemented to ensure that fastener products used in flight hardware meet specified performance requirements, to provide traceability of fasteners by manufacturer lot from origin to end use in NASA hardware, and to assure timely and adequate responses to quality alerts. We also found that disposition practices needed improvement to preclude the redistribution or resale of uncertifiable aerospace fasteners to other government agencies or the public. Our review disclosed a number of specific findings relative to these areas.

The first major disclosure in the audit report was the fact that fastener certifications were unsupported by test results.

Product review of 17 fastener manufacturers performed by a contractor for Marshall Space Flight Center and our audits of fastener distributors showed that some certification statements were not supported by documented test results, while others showed the type and/or quantity of testing fell short of satisfying product specifications. Of the 17 manufacturer product reviews conducted, six resulted in the issuance of product quality alerts. The lack of adequate controls necessary to assure product compliance with applicable part standards and specifications resulted in the installation of untested or undertested fasteners in flight hardware. If this occurred in "Fracture Critical" areas, it could have severe consequences.

More consistent practices and verification controls are needed to request certification packages. Marshall Space Flight Center did not, on a recurring basis, require any supporting test results to verify certification. Inconsistencies in quality control procedures at several contractor locations ranged from no verification to requesting comprehensive chemical/physical results and the performance of independent quality testing.

As a result of the above deficiencies within NASA and at contractor locations, product assurance has been significantly reduced because untested and/or undertested fastener products have been installed in flight hardware. In addition, existing NASA and contractor inventories contained potentially substandard fastener hardware that must be tested and recertified where possible, or replaced. Resolution of this deficiency has and will continue to require substantial government expenditure associated with the need to identify problem fasteners in stock and on flight hardware, testing and determining fastener useability, and removing and replacing installed and stored fasteners.

Another major concern discussed in the audit report was the nontraceability of fastener products in NASA and contractor inventories.

Our audit showed that additional procedures and controls were needed to trace fastener products by production lot from

manufacturer to end use in NASA hardware. During our review of NASA and contractor inventories, we found aerospace bolts that did not contain manufacturer identification symbols. Without identification symbols, it is difficult for NASA to trace suspect fasteners to applications on flight hardware when quality alerts or other problems surface. In addition, aerospace fastener stock at Marshall Space Flight Center were not traceable to procurement documents, supplier certifications, and/or to supporting test results. Similar deficiencies were also found at contractor facilities. For example, about 75 percent of the total fastener inventory of one prime contractor was stored only by part number and was not traceable to manufacturer lot number.

Without lot traceability, product integrity cannot be established because original manufacturer test data cannot be obtained, and subsequent independent testing cannot be projected because of mixed lots in storage bins. More importantly is the inability of NASA to trace fasteners by lot number to use in end products when problems are detected through alert or problem reporting systems.

Another concern included in the audit report relating to adequate certification dealt with false recertification and resale of disposed surplus/excess fasteners. The audit disclosed that current practices of disposing of uncertifiable fasteners did not preclude their false recertification and resale to the Government or the public for use in Government flight hardware, commercial and private aircraft, etc.

We also found that the Marshall Space Flight Center procedures for issuing Government-industry data exchange program alerts did not ensure timely and adequate contractor responses concerning project impact and corrective plans, and did not provide for contractor technical direction when responses were unacceptable or not received. Delays in closing product alerts resulted in continued availability of untested/undertested fasteners in contractors inventories for use in NASA hardware.

In order to correct the conditions previously stated, we recommended that NASA management take the following action:

- Issue instructions to identify criteria required for product certification and acceptance which will ensure product integrity.

- Establish quality assurance standards that will:

  - Provide for independent testing of fastener products procured by NASA and its contractors.

  - Require observation of testing and recording of test results at manufacturer sites.

- Subject all NASA and contractor fastener suppliers to initial comprehensive product reviews.

- Provide periodic quality surveys to ensure continued quality performance.

- Require that NASA and its contractors evaluate fastener stock to identify areas of inventory not traceable to manufacturer lot numbers.

- Ensure that unsafe fastener products are disposed of in a manner that will prohibit their future use in projects requiring high strength fasteners.

- Develop NASA instructions relating to the selection of fastener vendors that will encourage open competition.

- Revise and clarify NASA's responsibility for the coordination, reporting and closure of product alerts program.

NASA management generally concurred with our findings and recommendations and has or plans to take corrective action to address the concerns disclosed in our audit report.

As mentioned earlier in my statement, additional problems associated with fasteners used on NASA flight hardware were initially discovered by personnel at the Marshall Space Flight Center. In conjunction with its prime contractors, product reviews were performed of selected fastener manufacturers and associated testing certification processes. These product reviews determined that the required testing and certification process could be circumvented without detection under existing practices. These product reviews resulted in the issuance of several alerts, and the identification and referral to the Office of Inspector General of certain manufacturers' certifications which were not properly supported by required quality tests. Marshall Space Flight Center personnel provided technical expertise to my office during our audit of the fastener industry, and initiated a series of actions directed toward ensuring the integrity of fasteners used on flight hardware.

Mr. Chairman, that concludes my prepared statement on the audit of fastener products performed by the Office of Inspector General at the National Aeronautics and Space Administration. I would be pleased to answer any questions you or other member may have.

Mr. WALGREN. Thank you, Mr. Colvin. We appreciate the clarity of that testimony.

The chair would introduce at this point in the record a statement by the gentlelady from Rhode Island, Ms. Schneider.

Would you like to make any opening statement at this point for the record?

Ms. SCHNEIDER. Yes. Thank you, Mr. Chairman, especially since I was just informed I have got to step outside anyway.

I thank the witnesses for their very timely testimony, but I would like to interject something that, hopefully, you can cover whether I am or am not present here, and that is, I do recognize that the markings of defective bolts and fasteners regarding their grades and their properties is of utmost importance, but one of the crises that has been brought to my own attention by one of my own constituents was the infringement by certain foreign companies of copyrights of promotional material which further enables a foreign manufacturer to take less than up to par goods and to use the PR material that is practically identical to one of our own domestic manufacturers. And thereby what you end up doing is assuming that you were selling a high quality good and, in fact, not at all.

So I don't know if any of you have had the experience of that copyright of public relations material, too, but, if so, I would like to hear some comments on that. Hopefully, that can be included in the record. And I thank you, Mr. Chairman, if my statement can be incorporated into the record in full.

Mr. WALGREN. Without objection, that will be the order.

Ms. SCHNEIDER. Thank you.

[The prepared statement of Ms. Schneider follows:]

REP. CLAUDINE SCHNEIDER (R-RI)
OPENING STATEMENT
COUNTERFEIT BOLTS AND FASTENERS HEARING
SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY
April 5, 1989

U.S. INDUSTRY FACES MANY CHALLENGES FROM FOREIGN COMPETITION. ONE OF THE MOST DISTURBING IS THE FALSE MARKING OF DEFECTIVE BOLTS AND FASTENERS REGARDING THEIR GRADES AND PROPERTIES.

THE PART OF THE INDUSTRY THAT HAS BEEN MOST AFFLICTED BY THIS PRACTICE IS THE PART WHICH SUPPLIES BOLT AND FASTENERS NEEDED FOR THEIR STRENGTH -- SUCH AS IN THE CONSTRUCTION OF AIRPLANES, CARS, WEAPONS, AND NUCLEAR POWER PLANTS. IT IS AN INTOLERABLE SITUATION THAT RIPS-OFF THE CONSUMER, CHEATS BUSINESS, AND EVEN THREATENS OUR NATIONAL SECURITY.

ADOPTING PROCEDURES FOR TESTING AND ENSURING THE QUALITY OF BOLTS AND FASTENERS WOULD HELP PROTECT DOMESTIC FIRMS THAT ARE OPERATING IN GOOD FAITH AND CONSUMERS WHO TRUST THE PRODUCTS THEY BUY. I COMMEND THE WORK OF THE SUBCOMMITTEE CHAIRMAN, DOUG WALGREN, AND OF THE CHAIRMAN OF THE FULL COMMITTEE, ROBERT ROE, FOR THE IMPORTANT WORK THEY HAVE DONE ON THIS ISSUE.

I WOULD ALSO LIKE TO MENTION A SEPARATE BUT RELATED ISSUE THAT I BROUGHT TO THE ATTENTION OF THE SUBCOMMITTEE LAST YEAR: NAMELY, THE INFRINGEMENT BY CERTAIN FOREIGN COMPANIES OF COPYRIGHTS ON PROMOTIONAL MATERIAL. THIS ISSUE WAS BROUGHT TO MY ATTENTION BY A FASTENER MANUFACTURER IN MY HOME STATE OF RHODE ISLAND.

APPARENTLY CERTAIN FOREIGN GOVERNMENTS DO NOT RECOGNIZE U.S. COPYRIGHTS, ALLOWING THEIR COMPANIES TO COPY TOTALLY THE PROMOTIONAL MATERIALS OF U.S. COMPANIES. I AM CONCERNED THAT THIS PRACTICE COULD CONFUSE THE CONSUMER WHO WOULD ORDER PRODUCTS OF A LOWER QUALITY FROM A FOREIGN COMPANY THINKING THEY WERE BUYING THE HIGHER QUALITY PRODUCTS OF A U.S. FIRM. OF COURSE, THIS COULD FACILITATE THE DISTRIBUTION OF COUNTERFEIT PRODUCTS AS WELL.

THE U.S. FACES VERY TOUGH OVERSEAS COMPETITORS WHO WILL STOP AT NOTHING TO TAKE AWAY OUR MARKETS. IT IS TIME FOR THE U.S. TO GET TOUGH AS WELL.

I APPLAUD THE WORK OF THIS SUBCOMMITTEE TO EXAMINE THIS COMPLEX AND DIFFICULT ISSUE AND URGE THE MEMBERS OF THIS SUBCOMMITTEE TO BROADLY INVESTIGATE THE PROBLEM OF UNFAIR TRADE PRACTICES AFFECTING THE U.S. BOLTS AND FASTENER INDUSTRY.

Mr. WALGREN. Well, let me ask Mr. Nicolo whether your experience in the defense side generally, I gather, is similar to Mr. Colvin's NASA experience or whether very specifically we're receiving bolts and other kinds of fasteners are deliberately out of compliance in large numbers, one-third in some circumstances, that have been, in many instances, certified as having been tested, and obviously they were not.

Mr. NICOLO. Mr. Chairman, I'd probably answer that best by going back a little bit in history; on what our experience was when we found we had nonconformance problems; the precautions that we took and what our experience is today.

I'll start off with the automotive grade 8 bolt, a situation where we found about 30 percent of our inventory had material substitution, fasteners that were mismarked with a higher strength grade but were actually not, so there was a substitution of material.

At our center, we instituted certain contractual clauses and certain test procedures.

Mr. WALGREN. Let me just stop you there and ask you, what are some of the kinds of applications that that higher grade would be put to by the military?

Mr. NICOLO. Most of our applications are in the automotive area, combat vehicle type equipment, and primarily for fastening major assemblies or sub-assemblies in that equipment.

Mr. WALGREN. This would include tanks and other personnel carriers—

Mr. NICOLO. Yes, sir.

Mr. WALGREN. —that, if they broke down, would directly jeopardize whole groups of American troops.

Mr. NICOLO. It's quite possible the failure of a fastener in a given application on that vehicle would render that vehicle immobile, creating a problem in that situation.

Mr. WALGREN. Or if it was a vehicle that operated around airplanes and there was some kind of a failure that would cause a collision, conceivably extremely expensive equipment could be lost or damaged.

Mr. NICOLO. That's possible, sir. We have no records of those things happening, but I suppose that's possible.

Mr. WALGREN. Okay. Well, go ahead. I'm sorry.

Mr. NICOLO. In our experience, we found material substitution, and, again, it's the grade 8 issue. Without getting into the details of what that impact may or may not be on the tensile strength of the material, nevertheless, we found the substitution.

We instituted certain changes. We demanded certificates of quality compliance, and that is a paper trail that ties in test results, material analysis, et cetera, with the specific contract and the material supplied to us.

We instituted what we call product verification inspection, where we sample test each contract.

We instituted contract clauses that demanded that manufacturers' logos be listed, at that time, with the American Society of Mechanical Engineers in a publication that they had to apply and have it listed.

The net result has been in our testing of grade 8 contracts, we have found no materials substitutions such as those that we experienced previous to these precautions.

Mr. WALGREN. So when a system was in place, then something stopped happening.

Mr. NICOLO. Yes, sir.

Mr. WALGREN. Okay.

Mr. NICOLO. In the aerospace side, we found a similar situation an improvement in the quality of the fasteners by instituting similar actions and depot receipt testing.

Mr. WALGREN. But, clearly, you were in the position because of being with the military and having the resources to set up a system that would protect yourselves or the process to provide a deterrent. Private companies are not in the same position. They are really not in the position to set up a testing system for the bolts that they have to use, and therefore something similar to what you did in the military really has to be done for the private sector as a whole. Is that your belief?

Mr. NICOLO. I'm really not in a position to speak totally for the private sector. I could imagine that there are large companies that have the same capability as we do and could institute similar test programs or versions of those test programs. I couldn't say across the board that this could be done in the private sector.

Mr. WALGREN. I see.

Let me go back to you, Mr. Kammer. Can you tell me more again—and perhaps it is again—about the NVLAP program. How is that structured? You're not doing that within the institute, are you?

Mr. KAMMER. Well, we have the responsibility for administering it, and we use a variety of contractors and single individuals who act on contracts for us to do parts of the program, but they're acting in our name when they do it.

In concept, a group of individuals, a group of companies, might wish to have a laboratory certification program for a given set of properties or products. They would come to us and ask us. We would publish a request for interest from others, and we would bring people together. We would, through a consensus process, with the final decision by us, decide on what properties and how to test them and the like, publish a scheme for doing it, accept comments on that, try and accept the comments, and then at that point, as people requested and were willing to pay a fee, we would send people to inspect the entity to assure that they were able to perform the tests that were specified under the accreditation scheme.

Mr. WALGREN. And ultimately it's done in your name.

Mr. KAMMER. Yes.

Mr. WALGREN. So you certainly are ready to step forward and accept responsibility for the quality of these operations that are using your name?

Mr. KAMMER. Well, the accreditation of the laboratory is of the following nature: It accredits that they are capable of performing whatever the specified set of tests is. It does not assure you that the individuals who do the tests are going to be good at it every day, and—

Mr. WALGREN. So there is a limitation, too, when you give it your name. What you're saying is, you say that this organization is capable of conducting these tests, you don't warrant that they do.

Mr. KAMMER. That is correct, and the only tests that we will warrant are ones we do ourselves.

Mr. WALGREN. I see.

The gentleman from New York.

Mr. BOEHLERT. Mr. Colvin, Mr. Nicolo, neither one of you took a position on the bill, H.R. 336. Would you care to comment? Are you for it? Against it?

Mr. COLVIN. I have no objections to the bill. I would reiterate my concerns that there are some things that I do believe need to be strengthened, and I believe the chairman was addressing some of those concerns, that more testing still does not ensure the integrity of the bolts, or additional testing or testing done in lieu of private labs that already exist. So it's not that I have any objections to the bill at all.

Mr. BOEHLERT. Mr. Nicolo.

Mr. NICOLO. The Department of Defense prohibits—regulations prohibits me from giving a position on the bill. An official position will be provided—will propose legislation through the DOD channels.

Mr. BOEHLERT. That's interesting.

Mr. Kammer, you mentioned NVLAP—is that the way you pronounce the acronym?—and ASME as the only two possible accreditors. But we just heard from NASA about A2LA. Why don't you consider them an option?

Mr. KAMMER. The NVLAP program is up and running, has a legislative antecedent and the like. The ASME program that I have had the opportunity to review the documentation for is not up and running yet, but on the basis of the documentation and their prior precedence with the pressure vessel code, that they have administered since 1911, I have a lot of confidence in their ability to do it.

One of the concerns that is, I think important—I regard as important, and I know others do—is that any entities that perform under this be acceptable in an international arena as well. And there are a lot of requirements under the ISOIEC procedures. In fact, there are 12 rather lengthy documents, as I recall, that pertain to this. The ASME program, in our view, is likely to qualify for that. The A2LA program, as I currently understand it, would have to make some changes.

Mr. BOEHLERT. Mr. Nicolo, why did DISC go to A2LA and not go to NIST?

Mr. NICOLO. Well, as a matter of fact, we did start with the NBS, as NIST was known in those days, and we pursued that avenue. At that particular time, we even published a notice in the Federal Register, and to be honest with you, we were not even familiar with the A2LA; that it even existed.

Some of the comments that we received back from the private sector on our endeavor, mentioned that there was a program already under way for metals accreditation by the American Association for Laboratory Accreditation. So we investigated that particular avenue.

At one point in time, we issued a document to both organizations requesting that they respond to the procedures and how they would go about embarking on such a program. Both responded pretty much the same way. So we just felt that the private sector comment, the labs themselves being private sector, and the responses suggested that we take that avenue. There was no clear-cut difference, and, as a matter of fact, eventually the people that are handling and enforcing A2LA are well steeped in expertise, and they had performed similar functions at the NBS. So we didn't feel we would lose anything by going that avenue and, at the same time, satisfying the comments from the private sector.

Mr. BOEHLERT. It sounds like a logical conclusion.

Thank you. No further questions, Mr. Chairman.

Mr. WALGREN. Thank you, Mr. Boehlert.

What is the problem with requiring manufacturers' identification on critical bolts? Is that something that is not done today and something that would add a great deal of traceability in the system? And are there problems that you see that would create that should be avoided?

Mr. KAMMER. I think it's a reasonable thing to do. In fact, for some of the schemes to work, you have to have some method of identifying the bolts.

We've suggested that you may want to limit, indeed, quite a few of the requirements to the bolts that profess to have special properties of corrosion resistance, or strength, or the like. Under the SAE system, that would generally be bolts at 5 and above; 5 through 8.2 would be the ones then you'd probably want to speak to.

Mr. WALGREN. Other thoughts on really identifying the source of the bolts?

Mr. NICOLO. As a matter of fact, some of the standards, the national standards, for bolts require this. The SAE J429, the primary material spec. for the automotive fasteners, does, in fact, have a requirement that manufacturer's logo be embossed on the head of the fastener for the purpose of traceability.

We, at the center, are looking into better ways of traceability. We're investigating new concepts. Concepts that are not easily counterfeitable. If you can envision that someone can mismark for grade, then they can certainly mismark someone else's logo. So we're continuously investigating those areas.

Mr. WALGREN. I wonder how you could get around that. It seems a tough problem.

Mr. NICOLO. We're pursuing a system that has a metal stamping, but it's an encoded stamping that can be, hopefully, read with something similar to a bar code reader. It's in its infancy at the moment, but we are looking into that.

Mr. WALGREN. I see. Well, it gets complicated.

Mr. Colvin.

Mr. COLVIN. May I comment on that?

Mr. WALGREN. Surely.

Mr. COLVIN. Certainly that would satisfy my concerns, and that is to aid in the lot traceability back to a manufacturer, and I think it would also enable the agency and others to be more responsive to quality alerts, to be able to pinpoint exactly where those bolts are within the system.

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Mr. WALGREN. But it would be important that whatever that designation is, it not be able to be counterfeited, because you could literally put somebody under by just putting some poor material improperly marked with someone else's name on it, and there you go. Yes, that's a tough problem.

Well, on behalf of the committee, we appreciate your being a resource to us, and we look forward to interacting with you on this measure as it goes forward. Thanks very much.

Let me call the next panel: Melvin Green, the Associate Executive Director for Codes and Standards of the American Society of Mechanical Engineers; John Locke, the President of the American Association for Laboratory Accreditation; John Sullivan, the President of Accurate Fasteners, Incorporated; and Steven Schonholtz, the President of Gardenbolt International Corporation.

Gentlemen, please come forward. We appreciate your joining in these explorations.

I think we will be able to get through our process in a timely fashion. We expect to be interrupted by a vote at some point. Exactly when, we don't know, so we have to build some time in for that as well. But let's start out with Mr. Green, and we'll go through the panel in the order in which I introduced you to the record.

Mr. Green.

STATEMENTS OF MELVIN R. GREEN, ASSOCIATE EXECUTIVE DIRECTOR, CODES AND STANDARDS, AMERICAN SOCIETY OF MECHANICAL ENGINEERS, NEW YORK, NEW YORK; JOHN LOCKE, PRESIDENT, AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION, GAITHERSBURG, MARYLAND; JOHN F. SULLIVAN, PRESIDENT, ACCURATE FASTENERS, INC., SOUTH BOSTON, MASSACHUSETTS; AND STEVEN SCHONHOLTZ, PRESIDENT, GARDENBOLT INTERNATIONAL CORPORATION, SAYERVILLE, NEW JERSEY, ACCOMPANIED BY BARRY PORTEOUS, PORTEOUS FASTENERS, CALIFORNIA

Mr. GREEN. Mr. Chairman, members of the subcommittee, we certainly appreciate this opportunity to appear before you today to provide comments on H.R. 336 and give you some background on the ASME code and standards activities as input to your deliberations on how most effectively to address the problem of counterfeit and substandard fasteners. This is a serious national problem, and we applaud the subcommittee for holding this hearing and pursuing an effective solution.

I have brought with me today for assisting on some of the technical questions that you may have Mr. McGinnis, who is an engineering advisor in our codes and standards activity, and I may have to defer to him with some of the questions.

ASME is a nonprofit, educational, and technical society which was founded in 1880, has over 116,000 members and over 19,000 student members. We have a board of governors elected by the membership that manages the society. The board of governors has assigned the duties associated with the operation of code, standards, and related accreditation programs to the Council on Codes and Standards. This statement reflects the views of that Council.

ASME has been developing codes and standards since 1884. When we got involved in codes and standards, the public and engineers, specifically, didn't have a way to determine what base line—what was acceptable for equipment.

The first boiler and pressure vessel code that ASME published in 1915 had accreditation included, a mark, so that one could identify those boilers and pressure vessels that had been designed, fabricated, and inspected in accordance with that code. Until this day, we still administer accreditation programs for those and other areas.

There was very little interest in codes and standards by the United States Government until 1960. During the Kennedy Rounds of Tariff Discussions, it was alleged that the "state special," for which the States provided for foreign manufacturers, was more difficult for foreigners than ASME accreditation. As a result, the United States sued ASME under the Sherman Antitrust Act. This suit was settled with a consent decree that provided, in part, for ASME to expand its accreditation from North America to the rest of the world.

Since 1972, ASME has administered its accreditation program uniformly about the world and has accredited manufacturers in more than 35 countries. Through the oversight provided for in the consent decree, ASME looks upon the United States as the host government and, through this relationship, receives counsel on international affairs that involve ASME consultants, designees, and inspectors that make up the infrastructure of a world class accreditation program.

In a paper presented to an audience, including many from the Defense Department, on October 17, 1987, we recommended an accreditation program for fastener manufacturers and suppliers, and in our prepared statement we gave some of the conditions under which we would consider such a program. Since that time, industry and Government representatives have developed criteria for fastener accreditation. By September 1, 1989—and that's a conservative date—ASME should have a consensus of the parties and approval by the Society for this accreditation program.

ASME encourages the Federal agencies that reference our accreditation programs to participate in an overview of ASME accreditation. Just as manufacturers and suppliers benefit from ASME surveys, audits, and reviews, ASME also benefits from these quality specialists from the Federal agencies that reference ASME accreditation as a means of satisfying regulatory requirements or procurement measures. ASME believes that such participation by the Government is cost-effective for the Government. Through ASME, the United States gets the services of thousands of professionals. In turn, ASME receives an overview that results in findings of aberrations from procedures and observations for improvement.

Several Federal agencies currently reference ASME standards, such as the Nuclear Regulatory Commission, the General Services Administration, the Departments of Defense, Interior, and Transportation.

Turning now to specifics of H.R. 336, as I mentioned earlier, we applaud any efforts to reduce the danger of substandard bolts entering the Nation's inventory. We have studied H.R. 336 and are

quite concerned over some provisions of this proposed legislation. ASME codes and standards are referenced by Federal, State, and municipal agencies in the United States have become de facto international standards. They are used by industry and commerce.

Industry has confidence in the voluntary standards system, so we view with concern the words "initial standards" as used in page 2, line 8, of H.R. 336. By stating current tests are adequate for use as initial standards until the NIST issues regulations, you send a message to the voluntary standards community that their performance standards are inadequate and do not or cannot address the quality program. This committee is here today addressing quality because a certain segment of the fastener industry has circumvented existing standards, not because existing standards are inadequate.

Similarly, we have serious concerns with the language on page 3, lines 7 to 10, which allows accreditation of foreign laboratories by their government as meeting laboratory accreditation requirements. This will not address the issue of counterfeit bolts entering the supply system. Only a program that has specific criteria for quality assurance that includes surveys and audits by quality assurance professionals of fastener manufacturers or suppliers and distributors' locations to verify that an appropriate quality program exists and is being used can remedy this problem. H.R. 336 does not address the issue of quality assurance for the manufacturer and supplier.

The type of legislation needed is that as proposed by H.R. 777, the Fastener Quality Assurance Act of 1989. H.R. 777 has 18 months of in-depth investigative results behind it, and ASME urges this committee to support H.R. 777. In addition to restoring integrity to fastener products, H.R. 777 will give law enforcement agencies a means to bring to justice those who would misrepresent fastener capability. H.R. 777 directs the Commerce Department to use private sector accreditation as a means of satisfying regulatory requirements. This is a key difference with H.R. 336, which, in our view, does not require NIST to use private sector programs. H.R. 336 provides no options.

In summary, we believe that criteria to recognize testing and sampling is an essential element of an accreditation program for fasteners. However, to be effective, such a program must also include quality assurance for manufacturers and suppliers. Further, we believe Government oversight and participation is desirable. The Department of Defense has already indicated a willingness to provide such oversight to an ASME accreditation program on fasteners. This would be a part of ASME's by-law requirement for internal audits implemented through quality specialists employed by Federal agencies who reference ASME accreditation as a means of satisfying regulatory or procurement requirements.

This completes my formal statement, Mr. Chairman, and I'd be happy to answer your questions.

[The prepared statement of Mr. Green follows:]

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Statement of the
Council on Codes and Standards
of
The American Society of Mechanical Engineers
on
H.R. 336, the Standardization of Measurement Act

Before the

Subcommittee on Science, Research and Technology
Committee on Science, Space and Technology
U.S. House of Representatives

April 5, 1989

The American Society of Mechanical Engineers (ASME) is a nonprofit educational and technical society that was founded in 1880 and now has over 116,400 individual members including 19,200 students.

A Board of Governors, elected by the membership, manages the Society. The Board of Governors has assigned the duties associated with the operation of codes, standards and related accreditation programs to the Council on Codes and Standards. This statement reflects the views of that Council.

Since 1884, ASME has served the public through its technical standards program. When ASME began developing voluntary standards that year, the public had no way of knowing what to expect of equipment. Businessmen and engineers had no baseline against which to write a purchase order. Therefore, ASME began developing performance test codes which could be referenced in contracts between manufacturers and users.

A specific example of the need for codes and standards was in the area of boilers. During the 1800's and early 1900's, there were thousands of boiler explosions. In 1911, ASME formed a Boiler Code Committee to obtain the cooperation of all groups concerned to formulate one overall group of codes and standards for the design, fabrication and inspection of boilers.

The first code included the requirements for affixing an ASME code symbol to boilers that had been designed, fabricated and inspected in accordance with code rules. It also included rules on qualifying for the Certificate of Authorization to use the code symbol stamp. The symbol is used by a manufacturer to certify that he has constructed the equipment in accordance with code rules. Until 1972, ASME accredited manufacturers located throughout North America. The states of the United States which had referenced the code in their regulations had "state specials"

for foreign manufacturers.

During the Kennedy rounds of tariff discussions, it was alleged that the "state special" was more difficult to obtain than ASME accreditation and presented a non-tariff barrier. As a result, the United States sued ASME under the Sherman Antitrust Act. This suit was settled with a consent decree that provided, in part, for ASME to expand its accreditation from North America to the rest of the world.

Since 1972, ASME has administered its accreditation program uniformly about the world and has accredited manufacturers in more than 35 countries. Through the oversight provided for in the consent decree, ASME looks upon the United States as the host government and through this relationship receives counsel on international affairs that involve ASME consultants, designees and inspectors that make up the infrastructure of a world class accreditation program.

In a paper presented to an audience including many from the Department of Defense on October 17, 1987, we recommended an accreditation program for fastener manufacturers and suppliers. We stated that ASME would seriously consider developing such a program provided that:

1) Government agencies along with manufacturers, suppliers, and users participate on ASME consensus standards committees in developing the criteria for accreditation;
2) The Department of Defense participate with other appropriate Federal agencies in overview audits of the ASME accreditation program;
3) ASME can provide procedural due process; and
4) ASME is allowed to maintain privileged material in its files regarding the justification for accreditation.

This information would be available to those serving on audit teams, accreditation committees and staff.

Since that time, industry and government representatives have developed the criteria for fastener accreditation. By September 1, 1989, ASME should have a consensus of the parties and approval by the Society.

ASME encourages the Federal agencies that reference our accreditation programs to participate in an overview of ASME accreditation. Just as manufacturers and suppliers benefit from ASME surveys, audits and reviews, ASME also benefits from these quality specialists from the Federal agencies that reference ASME accreditation as a means of satisfying regulatory requirements or procurement mandates. ASME believes that such participation by the government is cost effective to the government. Through ASME, the United States gets the services of thousands of professionals. In turn, ASME receives an overview that results in "Findings" of aberrations from procedures and "Observations" for improvements.

Several Federal agencies currently reference ASME standards, such as the Nuclear Regulatory Commission, General Services Administration, and Departments of Defense, Interior, and Transportation.

Today, ASME develops and maintains approximately 600 Codes and Standards with about 4,700 volunteers. Also, ASME administers the following accreditation programs:

1) Boiler and Pressure Vessel
2) Nuclear Components and Systems
3) Nuclear Material Manufacturers and Suppliers
4) Safety and Pollution Prevention Equipment for Offshore Oil and Gas Operations

5) Elevator Inspector Institutes (such as United States Postal Service and National Association of Elevator Professionals)
6) Acrylic Manufacturers and Suppliers

ASME has the following accreditation programs under development:

1) Fastener Manufacturers and Suppliers
2) Resource Recovery Facility Operators
3) Controlled Management Systems

We applaud any efforts to reduce the danger of substandard bolts entering the nation's inventory. We have studied H.R. 336 and are quite concerned over some provisions of this proposed legislation.

ASME codes and standards are referenced by Federal, state and municipal agencies in the United States and have become de facto international standards. They are used by industry in commerce. Industry has confidence in the voluntary standards system. So we view, with concern, the words "initial standards" as used on page 2, line 8 of H.R. 336. By stating current tests are adequate for use as initial standards until the NIST issues regulations, you send the message to the voluntary standards community that their performance standards are inadequate and do not or cannot address the quality program. This committee is here today addressing quality because a certain segment of the fastener industry has circumvented existing standards.

Similarly, we have serious concerns with the language on page 3, lines 7-10, which allows accreditation of foreign laboratories by their government as meeting laboratory accreditation requirements. This will not address the issue of counterfeit bolts entering the supply system. Only a program that has specific criteria for quality assurance that includes surveys and

audits by quality assurance professionals to fastener manufacturer or supplier/ distributor locations to verify that an appropriate quality program exists and is being used can remedy this problem. H.R. 336 does not address the issue of quality assurance for the manufacturer and supplier.

The type of legislation needed is that as proposed by H.R. 777, "The Fastener Quality Assurance Act of 1989." H.R. 777 has 18 months of indepth investigative results behind it, and ASME urges this Committee to support H.R. 777. In addition to restoring integrity to fastener products, H.R. 777 will give law enforcement agencies a means to bring to justice those who would misrepresent fastener capabilities.

In summary, we believe that a criteria to recognize testing and sampling is an essential element of an accreditation program for fasteners. However, to be effective such a program must also include quality assurance for manufacturers and suppliers. Further, we believe government oversight and participation is desirable. The Department of Defense has already indicated a willingness to provide such oversight to an ASME accreditation program on fasteners. This would be a part of ASME's by-law requirement for internal audits implemented through quality specialists employed by Federal agencies who reference ASME accreditation as a means of satisfying regulatory or procurement requirements.

This completes my formal statement, Mr. Chairman. I would be happy to answer any questions.

Mr. WALGREN. Thank you, Mr. Green. We appreciate that, and we will turn to Mr. Locke.

Mr. LOCKE. Thank you, Mr. Chairman.

The American Association for Laboratory Accreditation—A2LA is the acronym we use—is happy to have this opportunity to speak to you with respect to our opinions on H.R. 336.

The Association is a nonprofit, nongovernmental public service membership society dedicated to the formal recognition of competent testing laboratories. We are organized in a manner similar to some of the voluntary consensus standards organizations such as ASTM and ASME, that are identified in section 5(2) of the bill. We do not develop test methods, relying, instead, on the methods promulgated by our sister societies or by Government agencies. However, we do specify requirements for accredited laboratories.

The Association itself meets the requirements of the voluntary consensus standard, ASTM 994, Guide for Laboratory Accreditation Systems, and we use the world-wide standard for accreditation, ISO International Standards Organization Guide 25, "General Requirements for Technical Competence of Testing Laboratories."

Two years ago, in January 1987, A2LA had accredited only three laboratories for mechanical testing and 23 for chemical testing, none of which were directly related to fastener problems. In December 1986, the Defense Industrial Supply Center provided us with a list of mechanical and chemical tests for metals in which they had an interest. We did not at that time focus specifically on fasteners because the DISC buys a wide variety of metal products in addition to fasteners. The DISC interest appeared to cover all areas of their metal purchases.

We immediately announced the special program on metals testing which featured these methods. Subsequently, we completed a small contract with DISC. The contract was designed to define our requirements to more directly meet their needs upon advice from the affected community. We established a committee of volunteers knowledgeable of the methods. We contacted all the other associations and societies and many of the ASTM committees specifically for their inputs.

The final requirements document is before our Board of Directors. What happens basically is, we accredit laboratories to the general requirements of the ISO standard, and in some instances we require more specificity, a specific criteria so we end up clarifying any areas of uncertainty in the general standard, and that is what is before the board at this time.

In the spring of 1987, we further developed our mechanical testing program to support the interests of General Motors, the Buick, Olds, Cadillac group, which has a major interest in metals testing.

A2LA has accredited 21 laboratories for performing one or more of the tests related to fasteners and have five laboratories, including one in Canada, in the process of being evaluated. We sent out 25 application packages in November and December of 1988 but only 8 in February and March of this year. We believe that both the manufacturers and the laboratories are waiting for the outcome of your deliberations and perhaps definitive legislation before they commit themselves to any course of action.

At present, we have nine assessors who can review the competence of laboratories for fastener methods. If a laboratory is requesting accreditation for an extensive list of tests in both the chemical and mechanical fields of testing, we may have to send two assessors, one in each field, to review the laboratory's competence.

A2LA is not a certification agency and does not accredit laboratories to make statements about the production processes of a manufacturers—or a manufacturer's ability to meet specific specifications. We do accredit laboratories and make findings that laboratories are competent to perform specific tests. If the legislation were to require that each lot or other specific quantity be accompanied in shipment by a test report from an accredited laboratory which represents test results of the fasteners taken from that lot, then laboratory accreditation by A2LA can fulfill those requirements. However, if the legislation were to require that fastener manufacturers would have to be approved and that the fastener is somehow marked, then a program more like that offered by ASME would be required.

Recently, we have been asked if we have the capacity to accredit many laboratories in a short time. We estimate that for a laboratory which is competent and which already has good quality assurance practices in place that accreditation can be done in about three months. For laboratories which do not have a quality assurance system in place, accreditation can take considerably longer.

We now have nine assessors trained who can assess fastener laboratories. We estimate that these assessors have the capacity to assess about 180 laboratories over a six-months period. If we receive 400 applications, we would need about 20 assessors. We already have a training course in place and full documentation ready to go, and we have, in our files, the names of about 10 more people who have the necessary background. We believe that we can provide the resources to meet this demand.

However, the ability of many of the laboratories to become accredited will depend upon their existing competence and their commitment to quality. Many laboratories will undoubtedly need more time to meet the accreditation requirements, time which is over and above that required to assess them.

Finally, a question about accrediting foreign laboratories has arisen a number of times. We have already accredited a Canadian laboratory and have another currently in the process. We have active overseas contacts, and we prefer to establish arrangements with competent overseas accreditation agencies. In the long term, this will be the ideal, and we are already working toward it. In the short term, we expect that a number of overseas assessments will be necessary.

Thank you very much.

[The prepared statement of Mr. Locke follows:]

STATEMENT OF JOHN W. LOCKE, PRESIDENT
AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA)
BEFORE THE SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
ON THE "STANDARDIZATION OF MEASUREMENT ACT OF 1989"
APRIL 5, 1989

Chairman Walgren and Members of the Subcommittee:

Thank you for the opportunity to present the views of the American Association for Laboratory Accreditation (A2LA) on H. R. 336, "Standardization of Measurement Act of 1989". I am here today to tell you briefly about the role A2LA is playing in stopping the flow of counterfeit and substandard bolts and other fasteners into the U.S. economy.

I am John W. Locke, President of A2LA. I have managed the Association, which is over 10 years old, for the past three years. Before that, I served as a consultant for a year in the field of occupational and environmental health and safety. My previous experience in laboratory accreditation was as coordinator of the National Voluntary Laboratory Accreditation Program (NVLAP) at the Department of Commerce from January 1978 until March 1982 and as Manager of Laboratory Accreditation (and NVLAP) from March 1982 until March 1985 when the program was transferred to the National Bureau of Standards (NBS), now known as the National Institute for Standards and Technology (NIST). My association experience dates to the mid 1970's when I was Technical Director of the Can Manufacturers Institute. I have been chairman of ASTM's Committee E-36 on Laboratory and Inspection Agency Evaluation and Accreditation for over three years and continue to serve in that capacity.

A2LA Background

The Association is a nonprofit, nongovernmental, public service, membership society dedicated to the formal recognition of competent testing laboratories. We are organized in a manner similar to some of the "voluntary consensus standards organizations" such as ASTM, AIAA, ANSI, ASME, identified in Section 5 (2) of the Bill. We do not develop test methods, relying instead on methods promulgated by our sister societies or by government agencies. However, we do specify requirements for accredited laboratories. The Association itself meets the requirements of the voluntary consensus standard, ASTM E 994 - 84, "Guide for Laboratory Accreditation Systems," and uses as a worldwide standard for accreditation, International Organization for Standardization (ISO) Guide 25 - 1982 "General Requirements for the Technical Competence of Testing Laboratories".

A Fact Sheet describing the Association is included as Attachment 1. Our Board of Directors is made up of representatives from government, major industries, laboratories and the public interest. The Vice Chairman is a Department of Defense employee and other government representatives come from NIOSH and FDA, with an ex-officio member from EPA. As of March 31, 1989, we have accredited 168 laboratories in eight different fields of

testing and we have an additional 25 laboratories in the process of being assessed. We have accredited laboratories in 32 states, Guam, and Canada.

In addition to our substantial accreditation activity, we have an active training program offering a variety of short courses on laboratory quality assurance and assessment (over 300 students in the past two years). We are members of many other relevant national groups, including the Department of Commerce's Industry Functional Advisory Committee (IFAC) on Standards and Certification, the ANSI Certification Committee, and the International Laboratory Accreditation Conference (ILAC). We are actively working on the establishment of international agreements with laboratory accreditation systems in Australia, Canada, Hong Kong, New Zealand, and the United Kingdom and have active communications with systems in six other countries.

Background in Bolt, Nut, Screw and Other Fastener Testing

Two years ago, in January, 1987, A2LA had accredited only three laboratories for mechanical testing and 23 for chemical testing, none of which were directly related to fastener problems. In December 1986, the Defense Industrial Supply Center (DISC) provided us with a list of mechanical and chemical tests for metals in which they had an interest. We did not focus specifically on fasteners, because DISC buys a wide variety of metal products in addition to fasteners and their interest appeared to cover all areas of their purchases. We immediately announced a special program on metals testing which featured these test methods. Meanwhile, in the spring of 1987, we had further developed our mechanical testing accreditation program to support the interests of the General Motors Buick, Olds, Cadillac Group, which also had major interest in metals testing.

During the summer and fall of 1987, we had some discussions with the DISC about how our program could be expanded to more completely serve their needs by helping them to identify competent metals testing laboratories. They suggested that we initiate a project to involve all of the major societies and others who might be interested in reviewing our program more explicitly and making recommendations for adding detail to the existing program. Primarily because of the DISC interest and the GM interest we had accredited 27 laboratories for various mechanical tests by the beginning of 1988. Only a few of these were accredited for fastener tests.

In November 1987, we received a small contract ($20,000) from DISC to implement a project to further develop the metals testing program. Under this contract, we completed the following tasks:

- Contacted ASTM Committees which develop relevant metals test methods to advise them of our program. The A2LA staff was invited to give presentations at six committee meetings.

- Contacted other private organizations to solicit their views on our program. In doing this task, we contacted the Aluminum Association, the American Council of Independent Laboratories, the American Chemical Society, the American Institute of Mining, Metallurgical and Petroleum Engineers, the American Iron and Steel Institute, the American Nuclear Society, the American Physical Society, the American Society for Metals, the American Society of Mechanical Engineers, the American

Society for Nondestructive Testing, Collaborative Testing Services, Inc., the Electric Power Research Institute, the Industrial Fasteners Institute, the Metal Properties Council, the National Association of Corrosion Engineers, the National Academy of Sciences/National Research Council (National Materials Advisory Board), the Society of Automotive Engineers, the Transportation Research Board, and the Welding Research Council.

- Established an Advisory Committee. This Committee consisted of people from DISC, ASTM Committees, testing laboratories, metals manufacturers, and test equipment makers and anyone who wished to participate. The Committee met two times and drafted a set of specific requirements which made more explicit the requirements of the A2LA general criteria. In the meantime, a private firm, Collaborative Testing Services Inc. proceeded to develop of a proficiency testing program with encouragement from us, DISC and the Navy.

- Contacted government organizations. We sent announcements to about 35 DOD organizations and to other government agencies including NASA, NBS, CPSC, DOE, OSHA, DOT, GSA, HUD, and the VA. No government agencies outside of DISC expressed an interest in interacting with us.

- Recruited new assessors. A2LA received the names of six potential assessors, and trained two of them. We have since trained three others.

- Held a public workshop in July, 1988 in Arlington VA. The workshop was open to anyone who wished to attend (no fee was charged). We had addressed correspondence announcing the meeting to all of the government and private sector organizations identified above. Total attendance included about 60 people. The program was described and requests made for additional input to the specific requirements. The DISC contract was completed in early August.

- The second advisory committee meeting was held October 6, 1988 in Pittsburgh with about 18 members present. The specific requirements were established. These were subsequently sent to the A2LA Criteria Council and have been approved. Finally, the requirements document is now in the process of being formally approved by the A2LA Board of Directors.

In the meantime, we have accredited 21 laboratories for performing one or more of the tests related to fasteners and have five more in the process, including one from Canada. The accredited laboratories are identified in Attachment 2 to this statement.

Practical Issues Related to Fastener Testing

A2LA has not identified a specific set of test methods which must be included for a laboratory testing fasteners. The specific methods and the required tests are the responsibility of the organization specifying the fastener. Our responsibility is to accredit laboratories for specific tests or types of tests for which we find them competent. DISC has suggested a number of methods. We have added other methods to the DISC list and Attachment 3 is the Metal Fasteners Test Methods Selection List as now

presented. Note that laboratories can include methods other than those listed if their customers should want them. We know that many specifiers want testing done according to ASME or SAE test methods. Some specifiers reference the ASTM methods, some do not. It is our assessors' responsibility to know the test methods and to make sure that the applicant laboratories have the right equipment and the people skilled to perform these tests.

At present, we have nine assessors who can review the competence of laboratories for fastener methods. If a laboratory is requesting accreditation for an extensive list of tests in both the chemical and mechanical fields of testing, we may have to send two assessors, one in each field, to review the laboratory's competence. If the laboratory is performing primarily mechanical tests, such as tensile strength or hardness, while maintaining a very limited amount of chemical testing capability, we may send only one assessor to the laboratory.

A2LA is not a certification agency and does not accredit laboratories to make statements about production processes or a manufacturer's ability to meet specific specifications. We do accredit laboratories and make findings that laboratories are competent to perform specific tests. If the legislation were to require that each lot or other specific quantity be accompanied in shipment by a test report from an accredited laboratory which presents test results of fasteners taken from that lot, then laboratory accreditation by A2LA can fulfill those requirements.

However, if the legislation were to require that fastener manufacturers would have to be approved and the fasteners somehow marked, then a program more like that offered by ASME would be required.

We are often asked what it costs to accredit testing laboratories. The Association's basic system application fee for one field of testing, such as mechanical testing, is $1,200; for two fields, chemical and mechanical the system fee is $1,700. Assessors' costs are billed directly to the laboratory. We pay assessors $300 per day and we pay their travel and per diem costs. We estimate that the assessment costs about another $1200 for one assessor, about $1,800 if two assessors are needed. Most of the time, we will need only one assessor. Once accredited, the yearly fee will be $800; the reassessment fee (every two years) is $900 plus the assessor costs.

We have been asked recently if we have the capacity to accredit many laboratories in a short time. We estimate that for a laboratory which is competent and which already has good quality assurance practices in place, the accreditation can be done in about three months. For laboratories which do not have a quality assurance system in place, accreditation can take considerably longer. We now have 9 assessors trained who can assess fastener testing laboratories. We estimate that these assessors have the capacity to assess about 180 laboratories over a six month period. If we received 400 applications, we would need about 20 assessors. We already have a training course in place and full documentation ready to go, and we have in our files the names of another 10 people who have the necessary background. We believe that we can provide the resources to meet this demand. However, the ability of many of these laboratories to become

accredited will depend upon their existing competence and their commitment to quality. Many laboratories will undoubtedly need more time to meet the accreditation requirements -- time which is over and above that required to assess them.

Some have suggested to us that as many as 2,000 laboratories might apply to be accredited within an eight month period. We believe that it is feasible to assemble and train a staff of 50 assessors during that time and get them underway, but a significantly larger number would be very difficult.

The question about accrediting foreign laboratories has arisen a number of times. We have already accredited a Canadian laboratory and have another currently in the evaluation process. We have active overseas contacts and would prefer to establish arrangements with competent overseas accreditation agencies. In the long term, this will be the ideal and we are already working toward it. In the short term, we expect that a number of overseas assessments will be necessary. This we are prepared to do, recognizing that if most of the laboratories seeking accreditation were overseas, we would need more assessors. Costs for travel and per diem would be substantially greater than for domestic laboratories, although our system fee schedule would remain the same. While assessing these overseas laboratories, we would at the same time begin establishing ties for mutual recognition. We have in the past offered to work with a laboratory accreditation system in another country by assisting in training assessors, or by using our assessors in specific technical areas where we had trained them.

Our accredited laboratories are required to participate in proficiency testing of some sort if such interlaboratory comparison programs are available. Collaborative Testing Services, Inc. now has a program for tensile testing, hardness determination, and chemical composition of metals. Some larger manufacturers and materials suppliers also run these kinds of interlaboratory tests, which may be acceptable to us in meeting our proficiency testing requirement. The problem with proficiency testing is that there is a sizable time delay between when the tests are made and when the results are analyzed and returned to the laboratory for review. If problems are found, it may not be for several weeks after the laboratory has recorded poor data.

We currently have a research project underway to establish statistical measurement control requirements. Ideally, statistical measurement control would identify the quality control problems almost on a real-time basis so that corrections to the testing process can be made within hours after a problem has occurred. This will often be before the data have been transmitted, so that correction can be made and the product retested before any inaccurate data are released.

This kind of quality control already exists in steel and other materials production facilities; we believe that statistical measurement control will become more the norm in reviewing performance of laboratories in the future.

I would be pleased to address your questions and I invite inquiries about the specific operation of our laboratory accreditation system.

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Attachment 1

American Association For Laboratory Accreditation

FACT SHEET

The AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA) is a nonprofit, nongovernmental, public service, membership society dedicated to the formal recognition of competent testing laboratories. Accreditation is available to any type of testing laboratory, be it private (independent or in-house) or government. Accreditation is based on internationally accepted criteria for competence for testing laboratories (ISO/IEC Guide 25).

Membership in A2LA is open to any individual, institution or corporation interested in the recognition of competent testing services. Members pay dues, attend meetings/symposia sponsored by the Association, and receive the Association's publications such as the periodic newsletter, A2LA News, and the A2LA Directory of Accredited Laboratories.

Goals. The goals of A2LA are to: (1) provide a comprehensive national laboratory accreditation system thereby improving testing within the United States and enhancing the quality and reputation of U.S. goods in markets at home and overseas; (2) provide publicity for accredited laboratories and a service to their users through the publication of an annual directory of accredited laboratories, newsletters, press releases, articles, and other related documents; (3) negotiate agreements on mutual recognition with other laboratory accreditation systems and thereby strive for national and international acceptance of the competence of accredited laboratories; and (4) eliminate unnecessary multiple assessments of laboratories.

Organization. A2LA is governed by a Board of Directors whose members represent the professions, industry, laboratories, and government. The Executive Committee of the A2LA Board of Directors:

Chester N. Grant, Chairman of the Board. General Motors
Lee E. Rogers, P.E., Vice Chairman. Department of Defense
John A. Blair, Secretary. Du Pont
Kenneth A. Kun, Ph.D., Treasurer. Syracuse Research Corporation.
Gladys B. Berchtold, Past Chairman. Standard Laboratories, Inc.
Carl E. Miller, Chairman of the A2LA Criteria Council. Factory Mutual Research
Earl Hess, Ph.D., Chairman of the A2LA Accreditation Council. Lancaster Laboratories, Inc.

Other members of the Board of Directors (as of May 2, 1989) include:
Wallace D. Edsall, Allegheny Ludlum Steel
Howard I. Forman, PhD., Esq., Consultant, formerly with the Department of Commerce and Rohm and Haas Co.
Ray Hauser, Ph.D., Hauser Laboratories
P. Ann Hoppe, FDA Division of Blood and Blood Products
Richard P. Kuchnicki, Council of American Building Officials
Jim E. Lapping, AFL-CIO
David B. MacLean, Consultant, formerly with the Association of Official Analytical Chemists

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Robert W. Peach, Consultant, formerly with Sears and Roebuck
Paul Schlecht, National Institute for Occupational Safety and Health
E. L. Schuerer, USX Corp.

Ex Officio Members of the Board:
Robert Booth, U. S. EPA Environmental Monitoring and Support Laboratory
James Hostetler, Esq., Kirkland & Ellis

Councils. The Board maintains two councils: (1) the Criteria Council which oversees the development and interpretation of criteria documents and (2) the Accreditation Council makes final recommendations for granting, denying, or terminating accreditation, based on the assessment and evaluation provided by the A2LA assessors and staff. Appeals of Council decisions are made first to the Council and then to the Board of Directors.

Staff. The President of the Association is John W. Locke. Other staff members are Peter S. Unger, Manager of Laboratory Accreditation, and Lisa C. Drake, Staff Director. A2LA has trained over 30 testing experts to conduct on-site assessments. Assessors are employed on an as-needed basis.

Accreditation has been granted in the Biological, Chemical, Construction Materials, Environmental, Geotechnical, Mechanical, Nondestructive, and Thermal fields of testing. As of March 31, 1989, A2LA has accredited 168 laboratories in 32 states, Guam and Canada in the following fields:

Bio	Chem	CMT	Env	Geo	Mech	NDT	The
4	47	38	22	14	36	6	1

Over 22 additional applications are being processed. Users of laboratory services are advised to seek the specific scope of accreditation from any accredited laboratory. The scope identifies the tests or types of tests for which the laboratory is accredited. Accreditation has been granted for testing in some more specific areas including automotive, coal, and metals.

Recognition. Several organizations, including General Motors, the New York City Transit Authority, the City of Houston, the States of New Mexico and Kansas, and the U.S. Department of Defense recognize A2LA accredited laboratories. A metals program has been developed specifically for the Defense Industrial Supply Center to help eliminate the problem of counterfeit fasteners being introduced to the U.S. marketplace.

A2LA has established and maintains a Quality Manual and conforms to the ISO Guides 54 and 55, "Testing Laboratory Accreditation Systems -- General Recommendations for the Acceptance of Accreditation Bodies" and "Testing Laboratory Accreditation Systems -- General Recommendations for Operation."

Funding. A2LA is funded by dues from members, fees charged to laboratories seeking accreditation, training courses and seminars, and donations. Training is given in laboratory quality assurance, assessment, safety and environmental management. Most of A2LA's resources are used to monitor the performance of enrolled laboratories.

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Peter Unger

American Association For Laboratory Accreditation

Attachment 2

ACCREDITED LABORATORIES THAT PERFORM
METAL FASTENER TESTS
(21)

The following laboratories have been accredited to perform one or more commonly specified metal fastener test methods.

Laboratory Name	City and State	Phone
Analytical Associates, Inc.	Detroit, MI	313 369 9400
Atlas Testing Laboratories	Commerce, CA	213 722 8810
Bowser-Morner, Inc.	Dayton, OH	513 253 8805
Cooper Industrial Products	Auburn, IN	219 925 0700
Detroit Testing Laboratory	Oak Park, MI	313 398 2100
Dickson Testing Company, Inc.	South Gate, CA	213 773 5212
Doehler-Jarvis/Farley Inds.	Greeneville, TN	615 639 1155
ENTELA, Inc.	Grand Rapids, MI	616 247 0515
Ghesquiere Plastic Testing	Harper Woods, MI	313 885 3535
GM Buick, Olds, & Cadillac Div.	Flint, MI	313 236 2878
Herron Testing Labs, Inc.	Charlotte, NC	704 588 1131
Herron Testing Labs, Inc.	Cleveland, OH	216 524 1450
Inland Steel Company	East Chicago, IN	219 399 3735
Laboratory Testing, Inc.	Dublin, PA	215 249 9898
Met-Chem Testing Laboratories	Dearborn, MI	313 271 8490
MNP Corporation	Utica, MI	313 254 1320
Mobile Metal Analysis	Huntington Bch, CA	714 892 1961
Standard Products Company	Dearborn, MI	313 561 1100
Taussig Associates, Inc.	Skokie, IL	312 676 2100
Technimet Corporation	New Berlin, WI	414 782 6344
Teledyne Rodney Metals	New Bedford, MA	617 996 5691

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Attachment 3

American Association For Laboratory Accreditation

METAL FASTENERS TEST METHODS

SELECTION LIST

To apply for A2LA accreditation under the metals program, you must identify every test technology and applicable standard or reference document for which accreditation is sought. If a standard test is not listed, but you would like to be accredited for it, identify it on an attachment by designation and title. To be considered for accreditation, a copy of each selected standard and the requisite equipment must be available at the laboratory. Check all for which accreditation is sought.

Chemical:

Spectroscopy
___ Atomic absorption
___ Emission/ICP
___ X-ray fluorescence

Wet Chemistry Measurements
___ Volumetric
___ Gravimetric
___ Spectrophotometric

Physical Properties
___ Density
___ Porosity

Microscopy
___ Light

Electrochemical
___ Deposition

Designation	Short Title
___ ASTM A90	Weight of Coating on Zinc-coated Iron or Steel Articles
___ ASTM A153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
___ ASTM A165	Electrodeposited Coatings of Cadmium on Steel
___ ASTM A309	Weight and Composition of Coating on Long Terne Sheet by the Triple Spot Test
___ ASTM A428	Weight of Coating on Aluminum-coated Iron or Steel Articles
___ ASTM B633	Electrodeposited Coatings of Zinc on Iron and Steel
___ ASTM B766	Electrodeposited Coatings of Cadmium
___ ASTM E212	Spectrographic Analysis of Carbon Steel & Low Alloy Steel by the Rod-to-Rod Technique
___ ASTM E322	X-Ray Emission Spect. Anal. of Low Alloy Steels & Cast Irons
___ ASTM E350	Chemical Analysis of Carbon Steel, Low Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron
___ ASTM E352	Chemical Analysis of Tool Steels and Other Similar Medium- and High-Alloy Steels
___ ASTM E353	Chemical Analysis of Stainless, Heat Resisting, Maraging, and Other Similar Iron, Nickel & Cobalt Alloys
___ ASTM E403	Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel by the Point-to-Plane Technique
___ ASTM E415	Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel
___ ASTM E572	X-Ray Emission Spectrometric Analysis of Stainless Steel
___ ASTM E663	Flame Atomic Absorption Analysis
___ ASTM E572	X-Ray Emission Spectrometric Analysis of Stainless Steel

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Mechanical (Physical & Dimensional):

___ ASTM A193 Alloy Steel and Stainless Steel Bolting Materials for High Temperature Service
___ ASTM A194 Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service
___ ASTM A307 Carbon Steel Bolts and Studs
___ ASTM A320 Alloy-Steel Bolting Materials for Low-Temperature Service
___ ASTM A325 High-Strength Bolts for Structural Steel Joints
___ ASTM A325M High-Strength Bolts for Structural Steel Joints (Metric)
___ ASTM A354 Quenched and Tempered Alloy Steel, Bolts, and other Externally Threaded Fasteners
___ ASTM A370 Mechanical Testing of Steel Products
___ ASTM A449 Quenched and Tempered Steel Bolts and Studs
___ ASTM A490 Heat-Treated Steel Structural Bolts, 150 ksi Tensile Strength
___ ASTM A490M Heat-Strength Steel Bolts, Classes 10.9 and 10.9.3 for Structural Steel Joints
___ ASTM A563 Carbon and Alloy Steel Nuts
___ ASTM B117 Salt Spray (Fog) Testing
___ ASTM E8 Tension Testing of Metallic Materials
___ ASTM E8M Tension Testing of Metallic Materials (Metric)
___ ASTM E10 Brinell Hardness of Metallic Materials
___ ASTM E18 Rockwell Hardness & Rockwell Superficial Hardness
___ ASTM E92 Vickers Hardness of Metallic Materials
___ ASTM E384 Microhardness of Materials
___ ASTM F436 Hardened Steel Washers
___ ASTM F436M Hardened Steel Washers (Metric)
___ ASTM F568 Carbon and Alloy Steel Externally Threaded Metric Fasteners
___ ASTM F606 Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets
___ ASTM F738 Stainless Steel Metric Bolts, Screws, and Studs
___ ASTM F788 Surface Discontinuities of Bolts, Screws, and Studs

___ ANSI B1.1 Dimensional Inspection of Unified Inch Screw Threads
___ ANSI B1.2 Gages and Gaging for Unified Inch Screw Threads
___ ANSI B1.3M Dimensional Acceptability for Metric Screw Threads
___ ANSI B1.16 American Gaging Practice for Metric Screw Threads
___ ANSI B18.2.1 Dimensions for Square and Hex Bolts and Screws
___ ANSI B18.2.2 Dimensions for Square and Hex Nuts
___ ANSI B18.13 Screw and Washer Assemblies
___ ANSI B18.2.31M Metric Hex Cap Screws

___ SAE J121 Decarburization in Hardened and Tempered Threaded Fasteners
___ SAE J123 Surface Discontinuities on Bolts, Screws and Studs
___ SAE J429 Mech. & Matl. Requirements for Externally Threaded Fasteners
___ SAE J1061 Surface Discontinuities on Gen. Appl. Bolts, Screws and Studs
___ SAE J1199 Mech. & Matl. Requirements for Metric Externally Threaded Steel Fasteners

___ FED-STD-H28 Screw-Thread Standards for Federal Services (section 20 on inspection methods for acceptability)
___ MIL-S-7742 Dimensional Inspection of Threads
___ MIL-S-8879 Gaging of Internal UNJ Threads
___ MIL-STD-1312 Fastener Test Methods

Mr. WALGREN. Thank you, Mr. Locke. We appreciate your testimony and your sensitivity to the time.

Then we will turn to Mr. Sullivan.

Mr. SULLIVAN. Mr. Chairman and subcommittee members, the National Fastener Distributors Association appreciates the opportunity to submit comments concerning proposed legislation, H.R. 336.

My name is John F. Sullivan, President of Accurate Fasteners, Incorporated, in Boston, Massachusetts. As a member of the National Fastener Distributors Association, I speak for every segment of the industry—manufacturer, importer, and distributor.

The NFDA is in favor of a bill which insures high-quality fasteners that are sold in commerce in the U.S. for critical applications. However, we feel that H.R. 336, as it is presented today, misses the mark. It is is not decisive, it is ambiguous, it is not technically correct, and there are no provisions to punish those who do not abide by it.

At the NFDA meeting on March 31, a round table discussion of 180 members of the fastener industry examined H.R. 336 and H.R. 777. Following this in-depth discussion, the Association favors legislation assuring fastener reliability in critical applications. Arriving at consensus, the NFDA considers H.R. 777 a more extensive and technically correct bill to accommodate desired results.

Specifically, the following points should be considered in your bill: Your introduction states that H.R. 336 is written "to increase bolt quality" and "to reduce the danger of substandard bolt failures."

One, quality cannot be legislated. A bolt correctly manufactured from proper material will meet all technical criteria; (b) a substandard bolt will not pass inspection; therefore, there will be no substandard bolt failures.

Section 2, part (3), line 8: eliminate the word "initial."

Present tests are fine to assure high-quality bolts. These testing procedures are constantly updated, and all standards have to be reviewed and voted on every five years by their voluntary consensus organizations, such as ASME.

Section 2, part (4): Quote, "tensile yielding." There is no such term in use today that I'm aware of. "May need"—nothing can be indecisive in testing.

B, purpose: Current testing requirements are sufficient to insure bolt quality. They need no change. All the industry problems go back to a lack of testing by DOD and DISC and not by improper or inadequate test procedures.

Section 3(b): Laboratory accreditation standards should remain constant and not be changed after one year. There is absolutely no evidence that changes are required.

Finally, I would like to say—bring to your attention the importance of the correct definition of a term "fastener" in any of your dealings.

In closing, Mr. Chairman, the NFDA is in favor of a technically correct bill, a bill that will restore confidence in the fastener industry. Thank you for allowing me this time, and I'll be happy to answer any of your questions.

Mr. WALGREN. Thank you, Mr. Sullivan, and let's then turn to Mr. Schonholtz.

Mr. SCHONHOLTZ. Okay. I have also done some editing, for the sake of time, on my testimony.

Mr. Chairman and committee members, my name is Steven Schonholtz, President of Gardenbolt International Corporation, a wholesaler of industrial fasteners for almost 50 years, and cochairman of the American Association of Fastener Importers, or AAFI. With me is Mr. Barry Porteous of Porte us Fasteners based in California and cochairman of the AAFI.

The American Association of Fastener Importers is a newly formed association organized in New Jersey whose 15 charter members represent hundreds of millions of dollars' worth of fastener sales each year. Our customer base consists of thousands of distributors and jobbers in the United States. AAFI, as a group, is working internationally with associations in other countries to develop procedures and communication channels that will maintain the quality level of our products necessary to support the public confidence in our industry.

In addition, our group is in support of any legislation or private sector action that will increase quality assurance and traceability of high-grade fasteners which would be used in critical applications whether produced domestically or by foreign entities.

We concur that the purpose of H.R. 336 to provide for a system of standardized measurement of high-strength fasteners is worthwhile provided the new system is coordinated with and approved by the voluntary consensus standard organizations, such as ASME and ASTM, who originally established the existing standards.

To ensure that the accreditation process as presented in H.R. 336 can be made workable, the director must establish responsive and timely laboratory accreditation procedures. The director should set guidelines under which foreign laboratories and factories can be accredited by their governments which are consistent with methods used by our government to accredit domestic laboratories and factories.

In an effort to preclude an interruption of the supply of industrial fasteners to end users and fabricators by allowing for enough approved sources, we suggest the effective date of this legislation might be delayed beyond January 1, 1991. This deferral would allow an appropriate and effective accreditation process for all laboratories, foreign and domestic, to be reviewed after they apply for accreditation.

Our group has the following recommendations to be considered in the development of the final legislation. In the existing standards, fasteners manufactured to high-strength specifications are required to bear a grade marking symbol on the head of the bolt. This grade marking, when coupled with a manufacturer's identification marking, positively identifies the bolts to its maker and traces the responsibility that the fastener is fabricated to the required standard.

Requirement of registered manufacturer's markings on high-strength fasteners acts as a deterrent against sales of nonconforming bolts by affording direct traceability. Head marking of bolts

with manufacturer's identification marks is currently being done on a voluntary yet widespread basis.

We recommend that the certifications for high-strength bolts will be passed through the supply chain more effectively not by paper but via unique certificate lot numbers on the shipping packages. This would eliminate overburdening paper trail regulation and expense that could jeopardize the economic future of many small distributors and jobbers in our industry.

We propose that only the original manufacturer and/or importer of these bolts be required to maintain the certification, ensuring compliance and traceability. The importer or manufacturer would pass on a certificate lot number by marking the keg or package with that number. Of course, the original certificates would be available on request to the distributors who require them for their specific customers.

We recommend defining the high-strength bolt as any bolt manufactured to SAE J429 grade 8, ASTM A325 type 1,2,3, and ASTM A490 type 1,2,3. These bolts are the most commonly used fasteners for critical applications, such as nuclear power plants, motor vehicles, buildings, and airplanes.

Thank you very much. I'd be happy to answer any questions.

[The prepared statement of Mr. Schonholtz follows:]

Before the
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON SCIENCE, RESEARCH, AND TECHNOLOGY

Testimony of

STEVEN R. SCHONHOLTZ
PRESIDENT
GARDENBOLT INTERNATIONAL, CORP.

April 5, 1989

Mr. Chairman and committee members, my name is Steven Schonholtz, President of Gardenbolt International, Corporation, a wholesaler of industrial fasteners for almost fifty years, and Co-Chairman of the American Association of Fastener Importers.

The American Association of Fastener Importers is a newly formed association, organized in New Jersey, whose fifteen charter members represent hundreds of millions of dollars worth of fastener sales each year. Our customer base consists of thousands of distributors and jobbers in the United States.

Our Association is concerned about information that has been channeled through the press, much of which is misleading, which has diminished the public confidence in our industry. Many of the alleged fastener failures have been due to misapplication or improper engineering and not due to faulty or sub-standard fasteners. AAFI as a group is working internationally to develop procedures and communication channels that will maintain the quality level of our products necessary to restore confidence in our industry.

In addition, our group is in support of any legislation or private sector action that will increase quality assurance and traceability of high grade fasteners which would be used in critical applications whether produced domestically or by foreign entities.

We concur that the purpose of H.R. 336 to provide for a system of standardized measurement of high strength fasteners is worthwhile, provided the new system is coordinated with, and approved by the voluntary consensus standard organizations such as ASME and ASTM, who originally established the existing standards.

To insure that the accreditation process as presented in H.R. 336 can be made workable, the Director must establish responsive and timely laboratory accreditation procedures. The Director should set guidelines under which foreign laboratories and factories can be accredited by <u>their</u> governments which are consistent with methods used by our government to accredit domestic laboratories and factories.

In an effort to preclude an interruption of the supply of industrial fasteners to end users and fabricators, by allowing for enough approved sources, we suggest the effective date of this legislation might be delayed beyond January 1, 1991. This deferral would allow an appropriate and effective accreditation

process for all the laboratories, foreign and domestic, to be reviewed after they apply for accreditation.

Our group has the following recommendations to be considered in the development of the final legislation.

1. We feel that an exception rule for emergency situations should be provided to respond to any need for immediate manufacture and delivery of fasteners. We recommend that in those situations such as a line going down at an auto plant, a method for priority certification be established.

2. In the existing standards, fasteners manufactured to high-strength specifications, are required to bear a grade marking symbol on the head of the bolt. This grade marking when coupled with the manufacturers identification marking positively identifies the bolt to its maker and traces the responsibility that the fastener is fabricated to the required standard.

The requirement of registered manufacturers markings on high strength fasteners act as a deterrent against sales of non-conforming bolts by affording direct traceability. Headmarking of bolts with manufacturers identification marks is currently being done on a voluntary yet widespread basis.

ASME and Fasteners Technology have accumulated an incomplete list of specific manufacturers identification marks.

We suggest that a registration process be incorporated into any legislation to establish a complete roster of identification marks for all manufacturers, foreign or domestic, and for private label distributors to insure traceability.

3. We recommend that the certifications for high strength bolts would be passed through the supply chain more effectively, not by paper, but via unique certificate lot numbers on the shipping packages. This would eliminate overburdening paper trail regulation and expense that could jeopardize the economic future of many small distributors and jobbers in our industry. We propose that only the original manufacturer and/or importer of these bolts be required to maintain the certification, insuring compliance and traceability. The importer or manufacturer would pass on the certificate lot number by marking the keg or package with that number. Of course, the original certificates would be available on request to the distributors who require them for their specific customers.

4. We recommend defining a high-strength bolt as any bolt manufactured to SAE J429 Grade 8. ASTM A325 type 1,2,3, and ASTM A490 type 1,2,3. These bolts are the most commonly used

fasteners for critical applications such as nuclear power plants, motor vehicles, buildings and airplanes.

Thank you very much for allowing our participation in these hearings. If the AAFI can be of any further assistance in the finalization of a responsive piece of legislation to insure the quality of fasteners as sold in commerce, we would welcome your call.

Mr. WALGREN. Thank you very much, Mr. Schonholtz.

Let me ask whether there's any reservations about the Government being involved in accrediting the test laboratories. Is that an area that creates problems for any of you from your perspectives?

Mr. Green.

Mr. GREEN. Yes. I'm concerned with an accreditation program where the industry or the public may get the perception that we have solved the problem by doing something that doesn't really address the quality assurance—through an accreditation program of manufacturers and suppliers. From such legislation, we may feel that we have solved all the problems, and we may have only put a band-aid on it.

Mr. WALGREN. And your point was that if you don't have tracing at that point and essentially some chain of control, that you haven't really solved the problem.

Mr. GREEN. That's my view.

Mr. WALGREN. And your point was that if bolts are coming in from foreign governments, or bolts that were accredited by foreign governments, that you don't really know very much about the standards with which they're used, and therefore you can't have confidence in the product.

Mr. GREEN. We have problems. As a United States corporate body, ASME must administer its programs uniformly about the world, and I've checked with the Justice Department on this and asked them when—some two years ago when the Defense Department suggested that we may set up an accreditation program for manufacturers in the United States and Canada. I checked with the Justice Department, and they said, "Well, we probably would not bring a suit against you, but some foreign manufacturer will," and presently we are working with the Justice Department on some suggestions that have come from foreign governments, and the opinion of the Justice Department is that any organization that is administering an accreditation program must do it uniformly about the world, and that's where one is if they are a U.S. corporate body that's administering accreditation programs.

Mr. WALGREN. Now the lack of uniformity comes where?

Mr. GREEN. Well, the lack of uniformity—I mean we would—under a system where we would be—where the United States Government would be recognizing accreditation programs outside the United States and Canada, it seems to me that the organizations within the United States are going to run risk of suits from the United States Government. The Government—our experience has been, is very strict, and it insists upon uniformity in accrediting applicants about the world, and we go into, as I said before, 35 countries, and that's an expanding thing, and any accreditation program that we would start, we would expect that the Government is going to insist that we go make it available to all manufacturers.

Mr. WALGREN. If the foreign governments would use the same criteria as we would in our domestic standards, would that solve that problem of lack of uniformity?

Mr. GREEN. I don't know, because the interest is that, from the foreigners that I've been dealing with—and within the next two weeks I'll be meeting in two foreign countries, Korea and the People's Republic of China—they're interested in using our accredita-

tion programs. So rather than they establishing their own accreditation programs, they're deferring to our accreditation programs.

Mr. WALGREN. They would apply our standards at that point.

Mr. GREEN. That is correct; they are using our standards.

Mr. WALGREN. Any other comments on the Government accrediting the laboratories?

Mr. Locke.

Mr. LOCKE. Thank you.

I guess our concern is probably a very parochial, biased concern. We are in direct competition with the NIST NVLAP program. I used to run that program for seven years, and if the NVLAP program—if NIST does, in fact, set up a program, it's not clear at all what will happen to our program.

Mr. WALGREN. It wouldn't necessarily be inconsistent with—they could certify your agency as an accrediting body, couldn't they, under that program?

Mr. LOCKE. They certainly have done that by basic agreements they have overseas with a number of laboratory accreditation systems overseas that are basically the same kind of a system that we have. They have chosen, to date, however, not to do the same thing domestically, for whatever reason.

Mr. WALGREN. I see.

But now then, Mr. Sullivan comes along and says that the problem is not in the standards at all, that the problem is in the lack of testing, if I heard you correctly.

Mr. SULLIVAN. That is what caused the problem originally, sir; yes, sir.

Mr. WALGREN. And do you have any guidance to us on how we can broaden the presence of testing, other than simply—I suppose by accreditation we would have lot testing, and that could be done through a requirement that in order for lots to be certified there would have to be a certain number of tests pulled per lot. Is that your understanding, Mr. Sullivan?

Mr. SULLIVAN. The majority of your large domestic users of fasteners do check and do have incoming inspection and do test their fasteners today, and they have for years.

Mr. WALGREN. But wouldn't that appear to be inconsistent with the quantity of substandard performance shown in NASA and in the defense application? If the manufacturers were pulling and testing, you wouldn't have one-third of certain samples showing up defective, would you?

Mr. SULLIVAN. I think you're going to find, sir, if you go back in history, the great majority of these problems came from DISC and DOD. They have corrected an awful lot of it. I don't want to say today they're doing nothing—they certainly have made major changes—but if you went back 8 or 10 years ago, you could—anybody can sell DISC anything they wanted in the form of fasteners as long as they had low price, and they had absolutely no incoming inspection.

Mr. WALGREN. But isn't that the case generally—

Mr. SULLIVAN. No, sir.

Mr. WALGREN. —for manufacturers who are simply looking for a bolt to hold something together?

Mr. SULLIVAN. They have incoming inspection, especially in critical items. They demand paperwork to know that they're getting what they're asking for, and they should have it.

Mr. WALGREN. All right. I think it was Mr. Schonholtz—and correct me if I'm wrong—who mentioned that this manufacturing marking is voluntarily being picked up on a quite widespread basis.

Mr. SCHONHOLTZ. Yes, it is.

Mr. WALGREN. Does that indicate that there really would be no problem in requiring a manufacturer's identification as a tracing mechanism?

Mr. SCHONHOLTZ. No. I was in Taiwan two weeks ago discussing the bills, and their reaction was, obviously they want to sell their products in this market. There are a lot of makers that manufacture a product that is—certainly to any standard they would be checked, internationally or from the American standards, and they're willing to mark, and they would like to register those marks with any association that has a roster of those manufacturers, and the Taiwan institute—the Taiwan industry currently has a drive on to register all their makers for traceability so they can sell their products in this market.

Mr. WALGREN. And if they're willing, I gather domestic manufacturers in the United States have no real problems with designating on critical strength bolts their insignia or their mark.

Mr. SULLIVAN. The majority of them do it today, sir.

Mr. WALGREN. I see. Let me recognize the gentlelady from Maryland, Mrs. Morella.

Welcome.

Mrs. MORELLA. I thank you, Mr. Chairman.

The gentlelady from Maryland was next-door at a committee hearing on NASA's long-range goals. It's difficult to simultaneously be in two committees, but I particularly wanted to come in to recognize the panel and tell you that we will be totally apprised with what you have said, appreciate your coming.

I wanted to certainly point out in a very parochial way that Mr. Locke is a constituent of mine and wanted to welcome him as well as the rest of the panel. So, I do know we have to vote and just wanted to acknowledge your presence.

Thank you, Mr. Chairman. That was kind of you, as usual.

Mr. WALGREN. Thank you, Mrs. Morella.

We go back, and we've been skirting this area about whether provisions in these bills, or particularly H.R. 336, if implemented, would restrict international trade. Are there any comments that would like to be made about the possibilities of a restraint on international trade that would get knocked down at that point, I gather?

Mr. SCHONHOLTZ. I think the policies are consistent for the overseas factories with the domestic factories and that the rules are basically the same rules, that would not be a problem.

Mr. WALGREN. I see. Other comments at all on the potential of restraint of trade in this area?

Mr. PORTEOUS. Mr. Chairman, if I could just make a quick statement.

Mr. WALGREN. Certainly.

Mr. PORTEOUS. Our biggest concern—

Mr. WALGREN. Do you want to identify yourself for the record and then—

Mr. PORTEOUS. Excuse me. I'm Mr. Porteous from Porteous Fastener Company in California.

I guess our biggest concern about restraint of trade or a problem with allowing enough fasteners to come in from overseas would have to do with the accreditation process and the timeliness of any bill to take effect and how many accredited labs would be on the docket at that time.

Mr. WALGREN. I see. So it's a mechanical problem more than a conceptual problem.

Mr. PORTEOUS. Exactly.

Mr. WALGREN. Well, all right. Let me express, as Mrs. Morella did, our appreciation to you all for being a resource to us, and we'll certainly be open to any other comments that you'd like to send to us as we consider this bill, and we look forward to going over the points that you've raised and perhaps being back in touch with you if we can get some clarification or need some clarification on them.

So, on behalf of the committee, thank you very much.

[Whereupon, at 4:05 p.m., the subcommittee was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

CATERPILLAR INC.

Peoria, Illinois 61629-1465

April 3, 1989

The Honorable Doug Walgren, Chairman
Science, Research and Technology Subcommittee
Committee on Science, Space and Technology
U.S. House of Representatives
2319 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Chairman:

Enclosed are the comments by Caterpillar Inc. on H.R. 336, The Standardization of Measurement Act of 1989.

We respectfully request that this statement and the attachment be made a part of the hearing record on this legislation.

Sincerely,

Rita L. Castle
Federal Issues Manager
Caterpillar Inc.

Telephone: (309) 675-4487
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Statement for the Record
by Caterpillar Inc.
to the
Subcommittee on Science Research and Technology
House Committee on Science, Space and Technology
on
H.R. 336, The Standardization of Measurement Act of 1989

Caterpillar Inc. is pleased to provide the Subcommittee on Science, Research and Technology of the House Committee on Science, Space and Technology with the following comments on H.R. 336, "The Standardization of Measurement Act of 1989."

Caterpillar Inc., headquartered in Peoria, Illinois, is a 10 billion dollar-plus organization employing about 60,000 employees worldwide. We design, manufacture, and market construction equipment, materials handling products, diesel engines and turbomachinery. We're also involved in a variety of service businesses--including financing, insurance, and computer services.

Cat products are manufactured in 17 plants in this country and 10 facilities outside the United States. About 220 dealers around the world sell and support a product line of about 300 models...twice as many as we sold in 1984.

In the mid-1980's, Caterpillar initiated a comprehensive business modernization program designed to provide better quality products -- built at a lower cost -- and in considerably less time -- with much less in-process inventory. As a part of this program, we took a careful look at

all the parts and components we had traditionally made in our own facilities. It became obvious that some could be produced to our specifications more cost effectively by suppliers. While retaining what we call "core" commodities, we began purchasing the rest from a network of high quality, low cost suppliers.

This increased reliance on supplier-produced products highlighted the need for a comprehensive product quality assurance program. Our reputation as a "quality house" couldn't be jeopardized.

Supplier Certification Program

Today, we purchase product from over 850 certified suppliers worldwide. Every certified supplier has undergone a comprehensive product-specific certification program which may take up to four years to complete. This process begins when a Caterpillar team conducts a supplier quality profile evaluating all aspects of supplier operations. Candidate suppliers are required to develop and submit a "Quality Plan" identifying all aspects of the production process including laboratory testing capability and gauge certification.

During a production "trial period" both supplier and product are under careful scrutiny to assure full compliance with the quality plan and to identify potential problem areas which might impact on product reliability.

To complete the certification process, a final audit is conducted by a multi-discipline team. If audit results are satisfactory...and all receiving plants agree on in-coming product quality...only then is the supplier certified. Each supplier is re-certified annually to assure that the manufacturing processes and controls continue to meet the requirements of the Quality Plan. In addition, each supplier is required to provide an Annual Quality Improvement (AQI) plan.

Fastener Production/Testing

Caterpillar is a major user of critical, high strength metal fasteners. Their applications range from the undercarriage track found on our 186,000 pound bulldozer to bolts used in our heavy-duty diesel engines. Almost 95 percent of these fasteners are Grade 8/heat-treated and therefore fall within the scope of the pending legislation.

In 1988, Caterpillar purchased about 250 million fasteners from US suppliers, representing almost 3000 part numbers. Over 85 percent of these critically important fasteners were produced by Caterpillar-certified suppliers or at our own manufacturing sites. The remaining fasteners were procured from established Caterpillar suppliers who will undergo the supplier certification process.

The importance of fasteners in our overall product assembly requires stringent quality assurance. Attached to this statement is a matrix illustrating the essential components of one supplier Quality Plan. The

critical elements are: (1) testing of the raw material for hardenability, chemistry and surface quality; (2) the in-process manufacturing controls; and (3) the final inspection of the product prior to delivery. None of these elements alone can assure fastener quality, but together they provide a high level of quality assurance.

Comments on H.R. 336:

Caterpillar does not object to the establishment of a laboratory accreditation program. We're aware of a number of such programs underway or in development by both public and private sector organizations. However, Caterpillar suggests that the language of H.R. 336 be modified to create a public-private partnership between government and industry in the field of laboratory accreditation. In addition, manufacturers should be assured the maximum flexibility to use laboratories accredited either by government agencies or through approved private sector accrediting organizations.

More importantly, Caterpillar is concerned about the feasibility and cost effectiveness of requiring that every fastener lot be tested. While recognizing the serious problems associated with substandard and counterfeit fasteners, requirements to test each fastener lot could add significant costs to the manufacturing process and ultimately to the price of the fasteners.

To meet the goal of restricting bogus fasteners in a cost-effective manner, Caterpillar recommends that the subcommittee consider amending the bill to permit a waiver of the requirement of lot testing where quality assurance programs containing process controls and adequate record keeping would provide fastener quality comparable to individual lot testing.

Caterpillar appreciates this opportunity to provide comments on H.R. 336, and looks forward to working with the Committee.

attach.

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MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Raw material	Hardenability	Each heat	Per 105D level S_2 3 wire ends min.	Heat treat wire ends	Metallurgist	Log book 5 yr.
	Surface flaws	Each heat	Per 105D level S_2 3 wire ends min.	Macro etch	Metallurgist	Lab report 5 yr.
	Cleanliness	Each heat	Per 105D level S_2 3 wire ends min.	Micro	Metallurgist	Lab report 5 yr.
	Tensile-reduction of area	Each heat	Per 105D level S_2 3 wire ends min.	Tinius-Olsen Tensile Mach.	Metallurgist	Lab report 5 yr. Log book
	Certification of analysis	Each heat	100%	Compare mill certs w/spec	Metallurgist	Check & initial 5 yr.
	Verification of certification of analysis	2 heats per month	1	Send wire ends from 2 heats to outside lab for verification	Metallurgist	Lab report 5 yr.
Heading	Dimensions: Head height, width across flats, length from under head to point, pitch blank dia., shoulder dia., fillet radius, C_L to flat, collar dia.	At set up	4 pcs.	Micrometers, calipers, optical comp.	Foreman	QC folder 5 yr.
		Each hour	4 pcs.	Micrometers, calipers, optical comp.	Operator	QC folder & SPC charts for specified dimensions 5 yr.
		End of run	4 pcs.	Micrometers, calipers, optical comp.	Foreman	QC folder 5 yr.
	Visual: Burrs, nicks, gouges, pits, draw die marks, seams	Each 1/2 hour	4 pcs.	Visual	Operator	By exception on Inspection Review Ticket (I.R.T.)

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Pointers	Dimensions: Length from under head to end of bolt, angle on point, distance across point	At set up	4 pcs.	Caliper, optical comp.	Foreman	QC folder 5 yr.
		Each hour	4 pcs.	Caliper, optical comp. at toolchange	Operator	SPC charts on specified dimensions 5 yr.
		End of run	4 pcs.	Caliper, optical comp.	Foreman	QC folder 5 yr.
	Visual: Chatter, tool gouges	Each 1/2 hour	4 pcs.	Visual	Operator	By exception on I.R.T.
Shavers	Dimensions: Head O.D., undercut dia., undercut width, undercut location, dia. of dog, radii	At set up	4 pcs.	Caliper, optical comp.	Foreman	Q.C. folder 5 yr.
		Each hour	4 pcs.	Capiper, optical comp. at tool change	Operator	SPC charts on specified dimensions 5 yr.
		End of run	4 pcs.	Caliper, optical comp.	Foreman	QC folder 5 yr.
	Visual: Tool break down chatter, gnuges	Each 1/2 hour	4 pcs.	Visual	Operator	By exception on I.R.T.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Trimmers	Dimensions: Width across flats, depth of 12 pt., dia. of collar, extrusion length, extrusion dia., shoulder length, O.D. of knurl	At set up	4 pcs.	Micrometer, caliper	Foreman	QC folder 5 yr.
		Each hour	4 pcs.	Micrometer, caliper	Operator	SPC charts on specified dimensions 5 yr.
		End of run	4 pcs.	Micrometer, caliper	Foreman	QC folder 5 yr.
	Visual: Nicks, gouges	Each 1/2 hour	4 pcs.	Visual	Operator	By exception on I.R.T.
	Non-destructive testing	Each hour when specified in QC folder	10 pcs.	Mag. particle coil only 1000 amps per in dia. Dye penetrant	Operator	QC folder 5 yr.
Roll Thread	Dimensions: Pitch dia., major dia., thread length, concentricity, knurl O.D., knurl location, runout threads	At set up	4 pcs.	Tri-roll, micrometers, concentricity gages, calipers, thread ring gages, optical comp.	Foreman	QC folder 5 yr.
		Each hour	4 pcs.	Tri-roll, micrometers, concentricity gages, calipers, thread ring gages	Set up man, Operator	SPC charts for specified dimensions 5 yr.
		End of run	4 pcs.	Tri-roll, micrometers, concentricity gages, calipers, thread ring gages, optical comp.	Foreman	QC folder 5 yr.

MATEIRAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Roll Thread (con't.)	Visual: Slivers, short threads	Each 1/2 hour	10 pcs.	Visual	Set up man Operator	By exception on I.R.T.
	Destructive tests: Laps	Each hour	4 pcs.	Macro etch, microscope	Set up man	By exception on I.R.T.
	Tensile hardness, proof load, sample mag.	At set up when bolts are rolled after heat treat	4 pcs.	Pieces sent to lab for tests	Foreman	QC folder 5 yr.
Heat Treat	Dew point hardening, furnace, generator	Twice per shift	One check Final zone	Alnor	Foreman Operator	QC folder 5 yr.
	As quenched hardness	Each lot see pg. 11	4 pcs.	Pcs. cut 1 dia. back RC checked mid radius	Operator	QC folder 5 yr.
	Quench oil temperature	Each lot	N/A	Thermometer submerged in oil	Operator	
	High heat temp.	Constant	Constant	Strip chart	Operator	QC folder 5 yr.
	Tempering temp.	Constant	Constant	Strip chart	Operator	QC folder 5 yr.
	Core hardness	Each pot	4 pcs.	Pcs. cut 1 dia. back Checked at mid radius	Operator	QC folder & SPC charts 5 yr.
	Surface hardness	Each pot	4 pcs.	On shank 15'N scale	Operator	QC folder 5 yr.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Grind	Dimensions: Grind dia., grind length, fillet radius	At set up	4 pcs.	Micrometer, caliper, optical comp., scale	Foreman	QC folder 5 yr.
		Each hour	4 pcs.	Micrometer, caliper, optical comp., scale	Operator	SPC charts on specified dimensions 5 yr.
		End of run	4 pcs.	Micrometer, caliper, optical comp., scale	Foreman	QC folder 5 yr.
	Visual: Burns, non-clean up	Each 1/2 hour	4 pcs.	Visual	Operator	By exception on I.R.T.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Drilling	Dimensions: Hole location, Hole I.D., ctsk.	At set up	4 pcs. per spindle	Go-No Go pins, optical comp., calipers	Foreman	QC folder 5 yr.
		Each hour	4 pcs. per spindle	Go-No Go pins, optical comp., calipers	Operator-set up	SPC charts
		End of run	4 pcs. per spindle	Go-No Go pins, optical comp., calipers	Foreman	QC folder 5 yr.
	Visual: No ctsk.-missing hole, gouges, nicks	Each 1/2 hour	4 pcs. per spindle	Visual	Operator-set up	By exception on I.R.T.
Milling	Dimensions: Mill location, Mill angle	At set up	4 pcs. per milling hd.	Calipers, optical comp.	Foreman	QC folder 5 yr.
		Each hour	4 pcs. per milling hd.	Calipers, optical comp.	Operator-set up	SPC charts on specified dimensions 5 yr.
		End of run	4 pcs. per milling hd.	Calipers, optical comp.	Foreman	QC folder 5 yr.
	Visual: Tool wear, nicks, gouges	Each 1/2 hour	4 pcs. per milling hd.	Visual	Operator-set up	By exception on I.R.T.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Final Inspeciton	Dimensions: Across flats, Head height, Collar dia., Fillet radius, length from under head to point, shoulder length, body dia., pitch dia., major dia., hole I.D., hole location, under cut dia., under cut location	Each lot	MIL-STD 105D level II for sample size "O" defectives allowed	Micrometer, caliper, optical comp., thread rings, tri-roll, concentricity gages	Quality Control	Final Inspection Record sheet 5 yr. Inspection Review Ticket for defectives 5 yr.
	Visual: Burrs, nicks, gouges, missing operations, identification	Each lot	MIL-STD 105D level II for sample size "O" defectives allowed	Visual	Quality Control	Final Inspection Record sheet 5 yr. Inspection Review Ticket for defectives 5 yr.
	Non-destructive Testing	Each lot	25 pcs. min.	Dye penetrant or mag. particle contact & coil 1000 amps per in dia.	Quality Control	Final Inspection Record sheet 5 yr. Inspection Review Ticket for defectives 5 yr.
	Destructive Testing Wedge tensile, proof load, core hardness, surface hardness	Each lot	25 pcs. of each	ASTM A370 test methods III Steel Fasteners	Quality Control	Lab report 5 yr.
	Thread lap check	Each lot	5 pcs.	Macro etch for indications, metallograph for measurement	Quality Control	Lab report 5 yr.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Final Inspection (Con't.)	Destructive Testing Case depth, Case hardness, Case structure	Each lot	10 pcs.	Metallograph, Tukon test for reference	Quality Control	Lab report 5 yr.
	Plating	Each lot	5 pcs.	Submit samples to lab for kocur drop test, Hold until lab OK's test	Quality Control	Lab report or certs by vendor 5 yr.
	Salt Spray	Each lot	5 pcs.	Salt spray test		Lab report 5 yr.
	Eddy Current	Each lot	25 pcs. min.		Quality Control	
Shipping	Product Identity	Each lot	All	Visual - check list on packing slip	Foreman	Copy of packing list Quality Control file 5 yr.
	Quantity	Each carton	All	Scale count	Foreman	Packing list 5 yr.
	Correct labeling	Each carton	All	Visual	Foreman	Check off on packing list 5 yr.
	Foreign parts	Each carton	All	Visual	Foreman	By exception on I.R.T.
	Proper banding	Each pallet	All	Visual	Foreman	By exception on I.R.T.
	Clean parts	Each carton	All	Visual	Foreman	By exception on I.R.T.

MATERIAL FLOW PROCESS CONTROL POINTS	MAJOR CHARACTERISTICS TO BE CHECKED	FREQUENCY	SAMPLE SIZE	METHOD	RESPONSIBILITY	TRACEABILITY METHOD RECORD RETENTION PERIOD
Warehouse	Product Indentity	Each lot	All	Visual - check list on packing slip	Foreman	Copy of packing list in Quality Control file 5 yr.
	Quantity	Each carton	All	Scale count	Foreman	Packing list 5 yr.
	Correct labeling	Each carton	All	Visual	Foreman	Check off on packing list 5 yr.
	Foreign parts	Each carton	All	Visual	Foreman	By exception on I.R.T.
	Proper banding	Each pallet	All	Visual	Foreman	By exception on I.R.T
	Clean parts	Each carton	All	Visual	Foreman	By exception on I.R.T.

* A lot is considered a single group of parts headed and manufactured at one time and submitted to final inspection at one time under a single shop order number.

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U.S. Department of Justice

Office of Legislative Affairs

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SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS

Office of the Assistant Attorney General

Washington, D.C. 20530

24 APR 1989

The Honorable John D. Dingell
Chairman, Subcommittee on
Oversight and Investigations
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

This is in further reference to your August 4, 1988 letter which transmitted to this Department a report adopted by the Subcommittee on Oversight and Investigations entitled, "The Threat From Substandard Fasteners: Is America Losing Its Grip?"

This Department recognizes the severity of the problems noted in the Subcommittee's report and is committed to the prosecution of fraudulent activity by unscrupulous suppliers of dangerous and substandard fasteners. Several investigations have recently resulted in convictions in cases involving fastener fraud. Additionally, fastener investigations are currently being conducted in a number of jurisdictions probing, among other things, allegations of fraud involving defective or counterfeit fasteners as well as false or defective testing and certification of fasteners.

We agree with the Subcommittee's conclusion that "after the fact enforcement is inefficient at best and does not prevent the flow of substandard products into inventory and use." We support the Subcommittee's proactive recommendations to encourage establishment of receipt inspection programs and mandatory fastener standards and testing procedures. If adopted, these measures will help to limit the consequential damages resulting from fastener fraud by encouraging early detection and rejection of substandard fasteners prior to their use by purchasers or other end-users. Moreover, identification of fastener fraud at a point where the defective items remain traceable to a supplier will facilitate the investigation and prosecution of the fraud.

The Subcommittee has made several other recommendations which, we believe, will contribute significantly to the successful elimination of fastener fraud. Specifically noteworthy are the Subcommittee's recommendations that Congress

should enact legislation to provide civil injunctive relief against suppliers of dangerous fasteners and to provide severe criminal penalties for the sale of substandard or counterfeit fasteners. Two recently enacted legislative proposals contain provisions which we expect will increase the Department's ability to prosecute successfully fastener fraud. The Anti-Drug Abuse Act of 1988 significantly strengthens the government's ability to conduct aggressive inspections for defective or counterfeit fasteners by making it a criminal offense to obstruct or impede quality assurance inspections by federal auditors. The Major Fraud Act of 1988 provides a formidable deterrent against fastener fraud by specifically enhancing criminal penalties for fraud offenses involving a conscious or reckless risk of serious personal injury.

We do not believe, however, that the Subcommittee's recommendation that the United States Attorneys be directed, in all fastener fraud cases, to waive any minimum monetary amount guidelines that they may have for accepting cases for prosecution, is an appropriate means for deterring the fraudulent sale of substandard and counterfeit fasteners.

First, it appears that the Subcommittee may be basing its recommendation on the erroneous assumption that many fastener fraud prosecutions and investigations are declined because of the low dollar amounts involved. As a practical matter, experience has demonstrated that Assistant United States Attorneys assigned to fastener fraud investigations do not refuse to pursue investigations or decline prosecutions solely because of minimum monetary amount guidelines. Criminal declination decisions can largely be attributed to proof problems resulting when substandard fasteners are common items discovered after they have been commingled with previous supplies by end-users. The difficulties of "after the fact" enforcement in such instances are recognized by the Subcommittee's report.

Second, we believe that it would be unsound from an enforcement standpoint for the Department to insist that United States Attorneys eliminate their minimum monetary requirements in an effort to rule out the possibility that declinations would be based on dollar considerations. The practical effect of such an approach would be to limit unduly the inherent authority and discretion vested in United States Attorneys. As long as all of the small dollar cases are referred for agency review, the Government can ensure that all available administrative remedies are pursued.

The Subcommittee also recommended that the Federal Bureau of Investigation be directed to supplement the investigative resources of the various federal agencies investigating fastener fraud. The Federal Bureau of Investigation has been and

continues to remain available upon request, to assist these agencies in their investigations of fastener fraud.

We hope this expression of views is helpful to the Subcommittee.

Sincerely,

Carol T. Crawford

Carol T. Crawford
Acting Assistant Attorney General

JOSEPH G. O'GRADY
President

April 12, 1989

Mr. Denis J. King
Committee on Science, Space, and Technology
Suite 2321, Rayburn House Office Building
Washington, DC 20515

Dear Mr. King:

Thank you for the opportunity to comment on H. R. 336, the Standardization of Measurement Act of 1989.

The following are comments on issues relating to ASTM activities.

Pursuant to Section 3(b) Laboratory Accreditation Standards, please inform the committee that ASTM Committee E36 on Criteria for the Evaluation of Testing and Inspection Agencies has developed standards which may be of interest, and ASTM Committee F16 on Fasteners may have an interest in this area.

Regarding Section 3(c) Recommendations to Voluntary Standards Organizations, ASTM would certainly be willing to accept any information or recommendations from NIST that deal with ASTM standards which would be forwarded to the appropriate ASTM technical committee for consideration following our due process procedures.

If you are contemplating a change that would limit the scope to "high strength steel bolt testing and grade mark indentification", we could ask our technical Committee F16 on Fasteners to consider this change, and as related to their standards development activities, provide a technical comment.

Thank you, again, for the opportunity to comment. I encourage you to call me or Helen Davis in our Washington Office if you think we can be of further help.

Sincerely,

JGO'Grady

Joseph G. O'Grady

JGO:mmp

ASTM, 1916 Race Street, Philadelphia, Pennsylvania 19103 USA•215-299-5555•TWX: 710-670-1037 / ASTM PHA•FAX: 215-977-9679

Aerospace Industries Association

Thomas N. Tate
Vice President
Legislative Affairs
371-8530

April 17, 1989

Mr. Dennis King
Congressional Fellow
Subcommittee on Science, Research and Technology
Committee on Science, Space and Technology
U. S. House of Representatives
Washington, D.C. 20515

Dear Dennis:

Attached please find a copy of the testimony submitted by the Aerospace Industries Association of America, Inc. (AIA) for the record of the April 5, 1989, Science, Research and Technology hearing on H. R. 336.

Please note that the testimony references the work AIA has done with you and members of the Investigations and Oversight Subcommittee staff.

As stated in previous communiques with you, AIA (in concert with the Department of Defense) is actively pursuing several methods of identifying and purging faulty fasteners from the nation's supply system. The programs the association has instituted are making a difference, and it is our belief that no further legislation is required. Any legislation that is considered, however, would need to include accreditation of distributors in order for it to be meaningful to the aerospace industry. We understand that you share the industry's concern for the safety and defense of this country and its citizens, and look forward to further dialogues with you as you attempt to address the problem of counterfeit fasteners.

Sincerely,

Thomas N. Tate

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.

TESTIMONY SUBMITTED FOR THE RECORD

HEARING ON H. R. 336

SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY

COMMITTEE ON SCIENCE, SPACE AND TECHNOLOGY

U. S. HOUSE OF REPRESENTATIVES

As the trade association representing the nation's major manufacturers of aircraft, missiles, spacecraft and related components thereof, the Aerospace Industries Association of America, Inc. (AIA) appreciates the opportunity to submit comments regarding H. R. 336, the Standardization of Measurement Act of 1989.

Given the great variety of aerospace operations performed by AIA's member companies on a day to day basis, the industry has a vested interest in any legislation which affects the use of fasteners. AIA has been working during this Congress and the 100th Congress with the staff of this Subcommittee and the Investigations and Oversight Subcommittee of the House Committee on Energy and Commerce to create legislation which will allow aerospace manufacturers to have confidence in the fasteners they purchase.

We have indicated in discussions and correspondence with the respective staffs of the Subcommittees that the prevalent procurement sources of fasteners by the aerospace industry merit further consideration by the Congress and staff. Accordingly, AIA cannot endorse H. R. 336 at this time, but remains interested in working with Congress to draft legislation which will address the specific concerns of the industry in this vital area.

There is little debate that the infusion of counterfeit, substandard and mismarked fasteners into the nation's infrastructure and military and civilian supply systems had reached epidemic proportions during the past few years. Once aware of the problem, the military services and the Defense Industrial Supply Center (DISC) acted to develop new procurement procedures that would allow for greater accountability and traceability of fasteners. Similarly, AIA member companies reviewed and reinforced procedures to safeguard against the infiltration of substandard fasteners.

To understand our industry's concerns, it is best to first acknowledge the idiosyncracies of the industry vis a vis fasteners. Aerospace manufacturers do not typically use Grade 8 bolts, which have been most widely implicated in examples of manufacturing fraud and counterfeiting. Additionally, aerospace manufacturers do not as a rule purchase directly from fastener manufacturers, as the quantities desired are so small as to not permit economy of scale for the fastener manufacturer. Our members primarily purchase fasteners from distributors or importers who receive merchandise from a variety of manufacturers,

both foreign and domestic. The aerospace industry also procures some fasteners from distributors who provide contributed value to the fasteners, and who, we believe should be treated as manufacturers.

The problems associated with distributors are exacerbated by the collusion which may exist between some distributors/importers and manufacturers. Recent investigations by various federal agencies, including the FAA, have unearthed schemes involving mislabeling of products by distributors, who knowingly received counterfeit products from manufacturers. It is alleged that these individuals or firms acted in concert to supply faulty products. AIA believes these malicious relationships would not be corrected by the current provisions of H. R. 336. Implementation of minimum requirements for controls, and enactment of a method to ensure compliance with these controls at the distributor level, will make a difference.

Due to the critical nature of aerospace products and the liability that results from their manufacture, aerospace manufacturers need to have the utmost confidence in the fasteners they use. As a result, aerospace manufacturers routinely sample fasteners as they arrive from manufacturers and distributors, inspecting them dimensionally and testing them for tensile strength, composition, plating, etc. The industry also conducts an extensive quality assurance system audit program at several fastener manufacturers and selected distributor facilities.

Additional certainty is built into the quality assurance/procurement system as AIA member companies rely upon established customer/merchant relationships they have built over the years. If a distributor is found to be supplying substandard products, the merchandise is returned or destroyed to prevent resale to an unsuspecting buyer. If inadequate corrective action is taken to prevent recurrance, no further business is conducted with the distributor. Such actions serve as statements that the end user (industry) will not accept substandard goods. Over time, accepting common theories of how markets operate, it is assumed that a distributor supplying such substandard products will be forced to go out of business, or find customers who do not test the product before use. In the July 1988 House Energy and Commerce Committee print entitled The Threat from Substandard Fasteners: Is America Losing its Grip? (Print 100-Y), the Oversight and Investigations Subcommittee concurred, "that distributors are far more likely to provide conforming fasteners when they know their customers are testing the fasteners..." (page 43).

To help cull unreliable distributors via a legislative vehicle, AIA proposes that distributors be held to the same certification and traceability requirements proposed for manufacturers in H. R. 777. A crackdown on manufacturers alone will make an appreciable difference to the fastener manufacturing industry. Since more than 80% of the aerospace industry's fastener problems are attributable to either distributors or importers, a crackdown on manufacturers alone will not make a significant difference to our member companies.

We suggest that any auditing and accreditation of distributors would ideally be conducted by a third party, preferably NIST. NIST has the requisite technical expertise and currently operates in these established circles. Accordingly we propose that legislation include the following language:

> Within 240 days of enactment of the ACT, the Secretary shall issue such regulations as may be necessary for the establishment of a National Institute of Standards and Technology (NIST) recognized National Standards Body distributor/importer accreditation system. Said program would provide accreditation of importers and distributors who purchase for resale at wholesale price a lot or portion thereof.

However, we have been advised that NIST believes such an arrangement would compromise its current role as a purveyor of standards. Should this prove burdensome, AIA would support a similar organization taking on the third party accreditation responsibility such as the American Society for Mechanical Engineers (ASME).

AIA envisions this autonomous third party operating in a manner similar to the Underwriter's Laboratory which certifies consumer electronic goods. Firms meeting certification requirements would be given a "Good Housekeeping" seal of approval, as it were. Costs associated with operation of such a third party distributor accreditation system should be distributed evenly among importers, distributors, manufacturers, and end users. Currently, AIA member companies are participating in a voluntary program which allows process and system surveillance of both manufacturers and distributors.

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While the Energy and Commerce Committee print previously cited (100-Y) presented a general overview of the industry's progress on this matter, the report incorrectly referenced a technical presentation. Under the section headlined "Aerospace Industry" on page 43, the text incorrectly states that "the Association (AIA) instituted a testing program on...standard aerospace fasteners" and then cites results from the testing program of a single AIA-member company. This inaccuracy might lead an unsuspecting reader to conclude that testing was conducted on an industry-wide basis, with the results attributable to the industry as a whole. According to our records, staff was advised of the individual nature of these results. Subsequent conversations on the matter have confirmed that neither industry nor staff are aware of the existence of any industry-wide data, therefore the individual nature of the data should be emphasized in published documents.

Furthermore, the report makes no distinction made between the flight or safety critical applications of fasteners and non-critical applications, which was the actual application in this case. While one may argue that since no distinction was made either way there is no real harm, the high degree of safety and precision required of aerospace products predisposes the aerospace industry and its representatives to be as accurate as possible at all times.

AIA understands that the Committee and Congress as a whole share the industry's concern for the safety and defense of this country and its citizens, and we are happy to cooperate with you as you attempt to address the problem of counterfeit fasteners. As stated in previous communiques with the Science, Research and Technology Subcommittee and and the Investigations and Oversight Subcommittee of Energy and Commerce, AIA (in concert with the Department of Defense) is actively pursuing several methods of identifying and purging faulty fasteners from the nation's supply system. The programs the association has instituted are making a difference. As indicated in this testimony, legislation that includes a mechanism to accredit distributors is the only option that would provide significant added benefit to the aerospace industry.

CARPENTER TECHNOLOGY CORPORATION

GENERAL OFFICE: READING, PENNSYLVANIA 19603

Cartech

ADOLPH J. LENA
President and Chief Operating Officer

APR [illegible]

March 30, 1989

The Honorable Doug Walgren
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Walgren:

We strongly encourage your support for H.R. 777, known as the Fastener Quality Assurance Act of 1989. The purpose of the bill is to control the flood of substandard and/or mismarked carbon, stainless, and high temperature alloy fasteners. The proposed legislation would provide accountability and responsibility for these products.

The bill represents a fair and equitable solution to the treacherous problem of counterfeit and substandard fasteners that have found their way into the U.S. workplace. Action is needed to help insure the safety of American workers and the integrity of U.S. industry. The domestic fastener industry represents an important customer base to Carpenter, and we respectfully urge your support of this legislation.

Sincerely,

Adolph J. Lena

President and
Chief Operating Officer

AJL/jas